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(54) METHOD, MEDIUM, AND SYSTEM FOR PURCHASE REQUISITION IMPORTATION

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Assignee: SCIQUEST INC., Cary, NC (US)

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Related U.S. Application Data

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- (60)Provisional application No. 61/130,028, filed on May

(51)	Int. Cl.	
	G06Q 30/00	(2012.01)
	G06Q 30/06	(2012.01)

(52) U.S. Cl. CPC *G06Q 30/0635* (2013.01)

Field of Classification Search CPC G06Q 30/0601; G06Q 30/0635; G06Q 30/0637; G06Q 30/0611; G06Q 30/087 See application file for complete search history.

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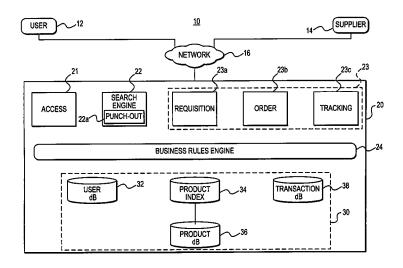
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Primary Examiner — Matthew Zimmerman (74) Attorney, Agent, or Firm - Morgan, Lewis & Bockius LLP

(57)ABSTRACT

In an embodiment, a computer-implemented method operating at a server system is disclosed. The server hosts and electronic procurement system. One or more user instructions for importing a purchase requisition are received. In response to the one or more instructions, a purchase requisition is received, where the purchase requisition originates from outside the electronic procurement system. The purchase requisition is converted from a first format to a second format, wherein the second format is native to the electronic procurement system. The converted purchase requisition verified to be consistent with business rules associated with the electronic procurement system, including at least a rule to verify that the purchase requisition originates from a recognized user of the electronic procurement system. Then, the purchaser requisition is routed for approval. Related methods and systems are also disclosed.

27 Claims, 164 Drawing Sheets



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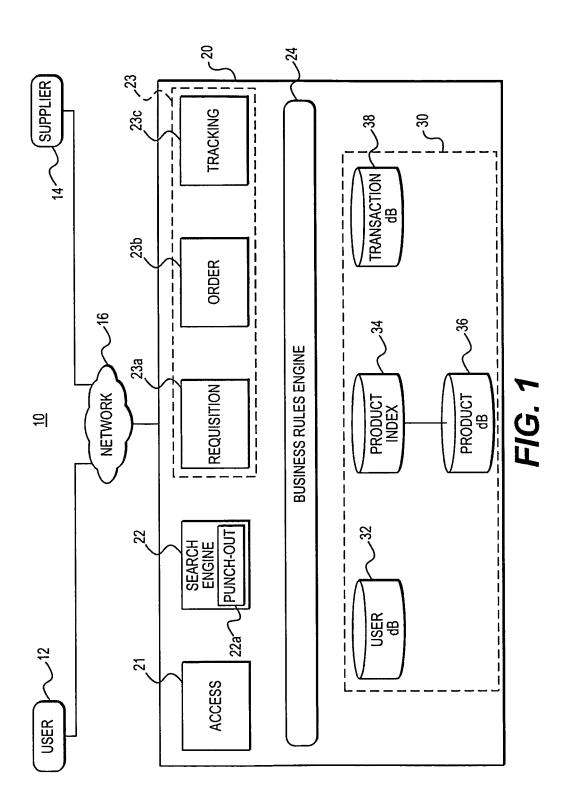
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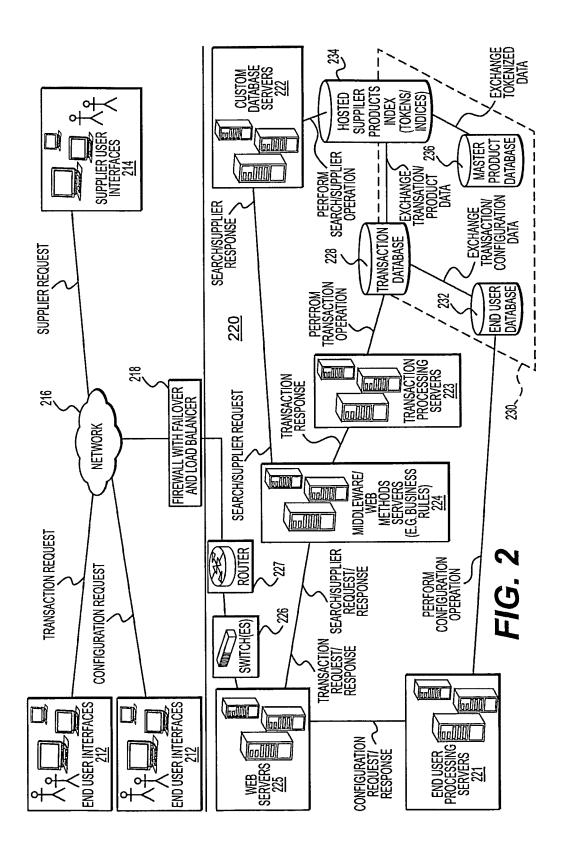
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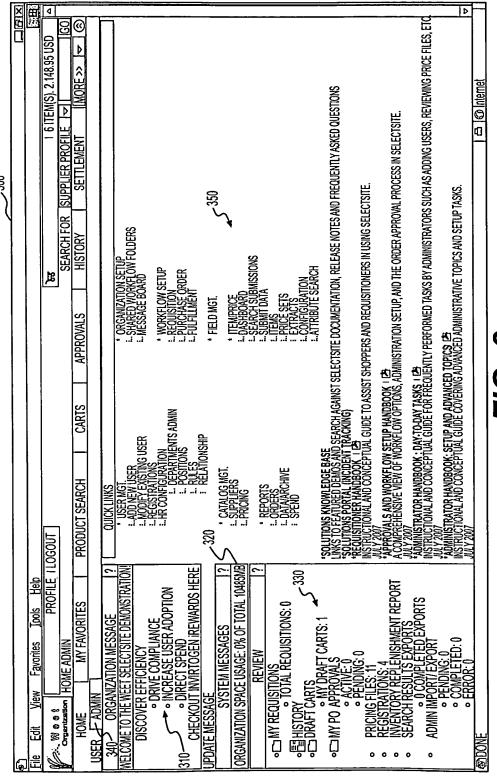
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F/G. 3

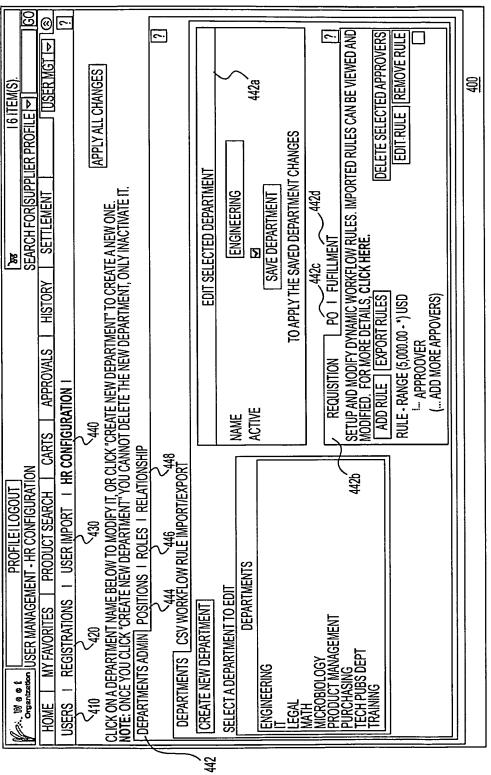
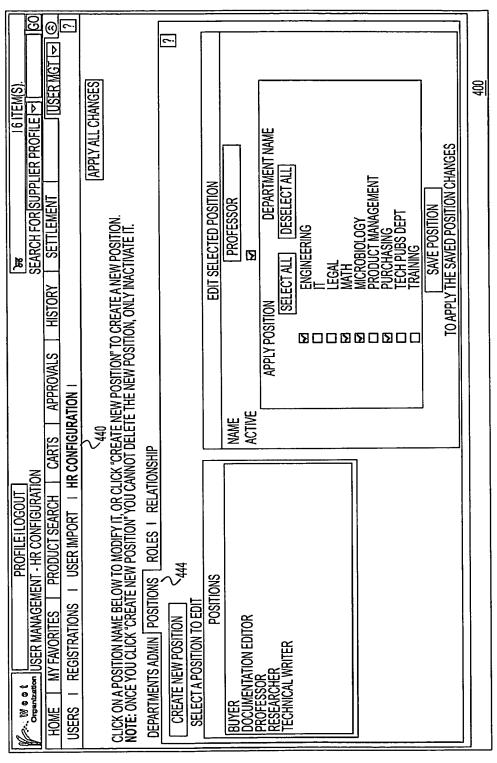


FIG. 4A



F/G. 4B

<u> </u>		<u> </u>
I 6 ITEM(S). ER PROFILE → [USER MGT →] [APPLY ALL CHANGES] E. TO CREATE A NEW TOP-LEV		400
ISTORY SETTLEMENT 16 ITELEMENT 16 ITELEMENT 10 ITELEMENT 1		
TS APPROVALS HIST IGURATION I 440 E AND CLICK ADD CHILD ROLE THE NEW ROLE, ONLY INACTIVE		
ACELLE LOGOUT HR CONFIGURATION DDUCT SEARCH CAR SER IMPORT I HR CONI SER IMPORT I HR CONI SER IMPORT I CONI CANIO CANIO ROLE OLE YOU CANNOT DELETE ROLES RELATIONSHIF	REATE NEW MENTONLY NOT TOUCH LWRITER	
Mote: W * 0 & Consentation PRINCE MY FAVORITES PROUSERS PR	SELECT A ROLE TO EDIT OR CREATE NEW ROLES ROLES ROLES + ADMINISTRATOR - APPROVER - CATALOG MANAGER - CATALOG MANAGER - LEGAL - LEGAL - LEGAL - RECIEVING + REQUISITIONER - RECIEVING + SENIOR EDITOR - SENIOR EDITOR - SENIOR EDITOR - SENIOR EDITOR - SENIOR FICHNICAL WRITER - SUPPLIER	

F/G. 4C

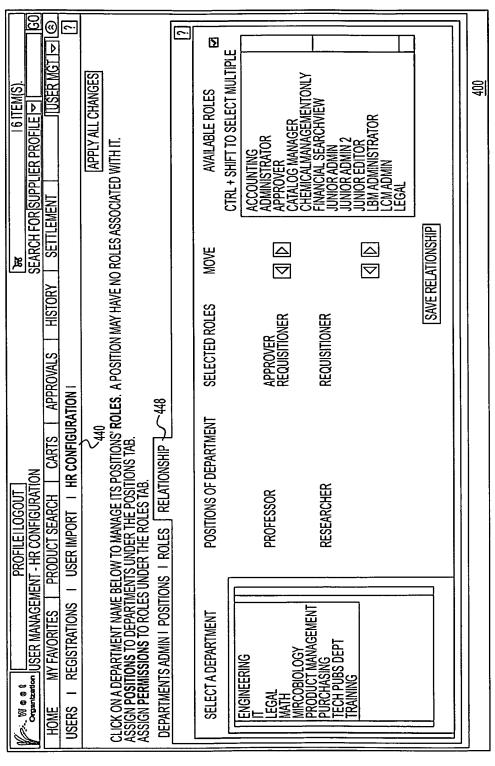


FIG. 4D

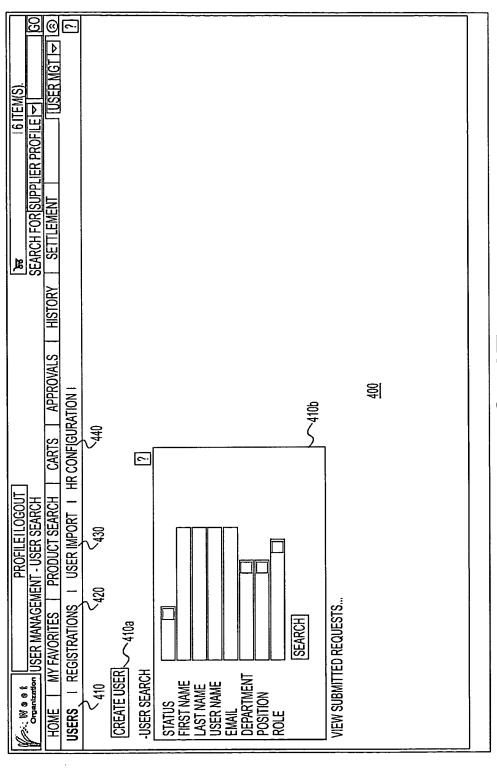


FIG. 4E

	ISER MGT (=)			4PAGE [1 □ 0F 1 ▷	APPROVAL	APPROVE APPROVE APPROVE	
16 ITEM(S). ER PROFILE [♥]				- 1	POSITION	1111	400
	SETTLEMENT				DEPARTMENT		
	APPROVALS HISTORY ATION I				EMAIL	FUSER@COMPANY.COM SEUSER@COMPANY.COM TUSER@COMPANY.COM FOUSER@COMPANY.COM	
	PRODUCT SEARCH CARTS APPI USER IMPORT 1 HR CONFIGURATION			RATION(S): 4	PHONE	(000) 000-0000 (000) 000-0001 (000) 000-0002 (000) 000-0003	
SEMEN	<u>my favorites produc</u> Registrations i user II	Z420		PENDING REGISTRATION(S): 4	USER NAME	FUSER SEUSER TUSER FOUSER	
SU © W 6 @ t	HOME MY F USERS I REGI		CREATE USER		NAME	FIRST USER SECOND USER THIRD USER FOURTH USER	

FIG. 4F

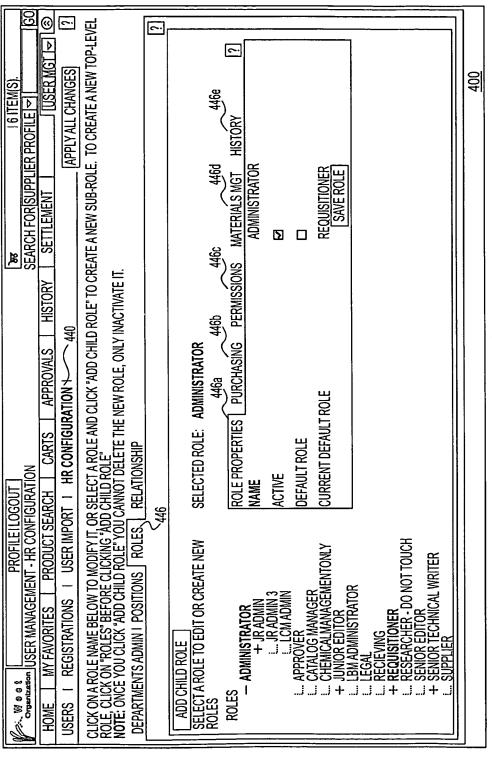


FIG. 4G

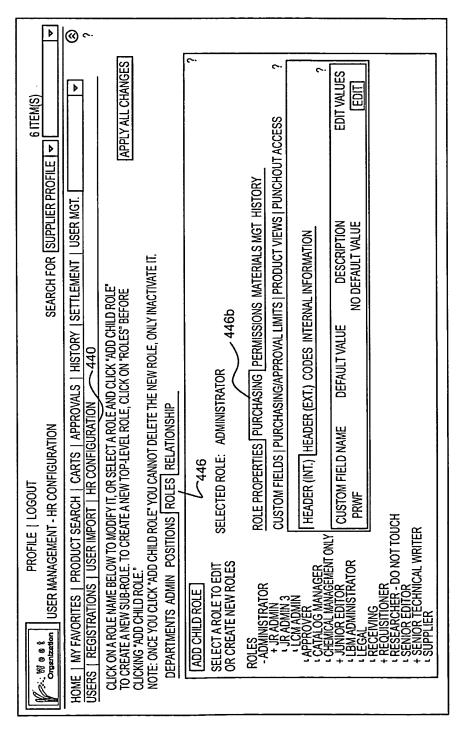


FIG. 4H

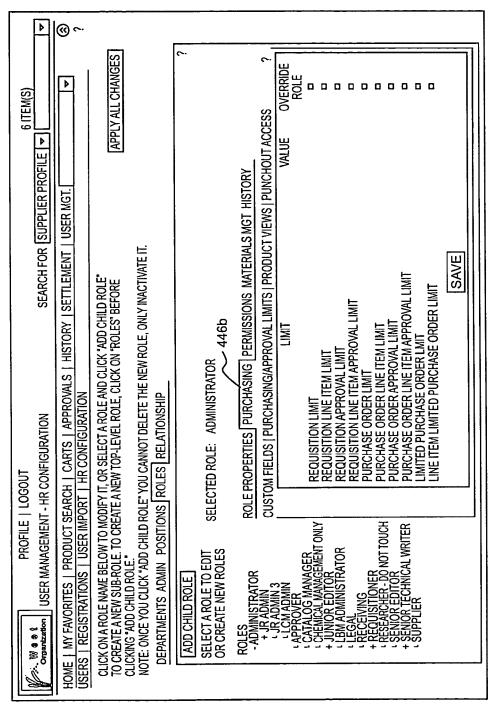


FIG. 41

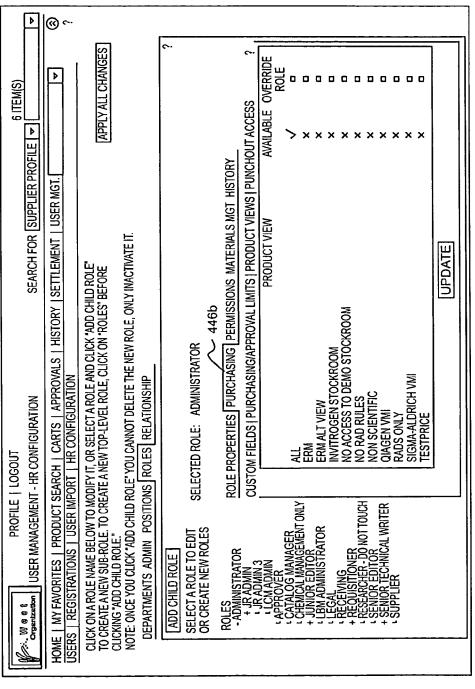


FIG. 4J

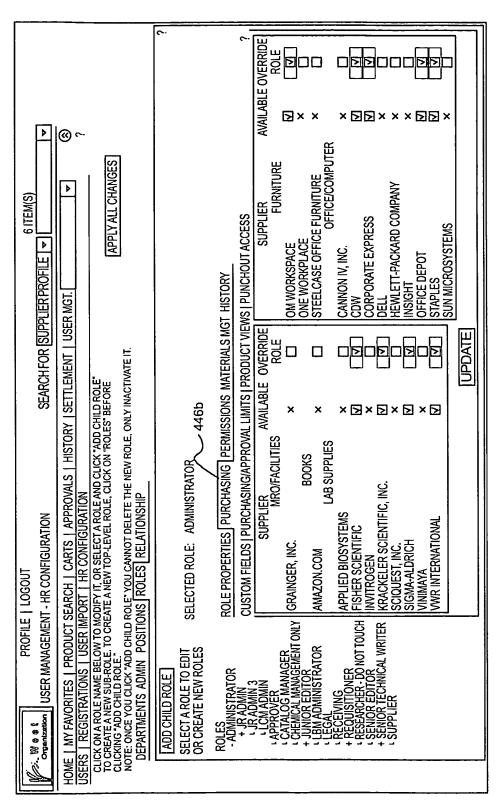


FIG. 4K

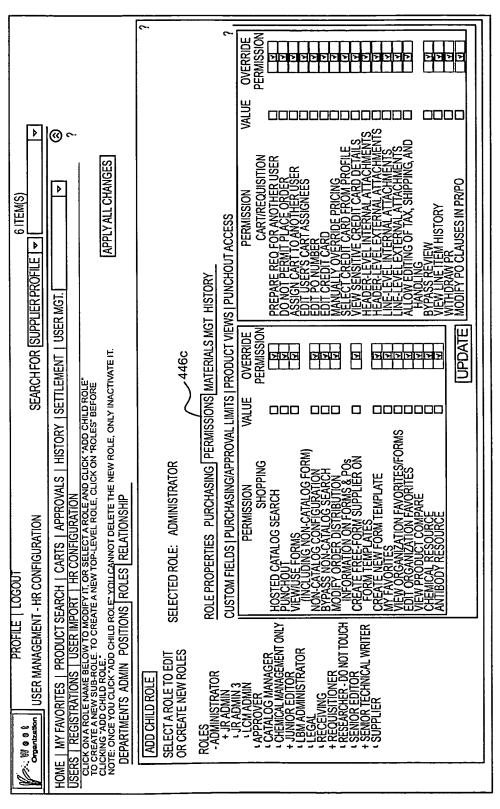


FIG. 4L

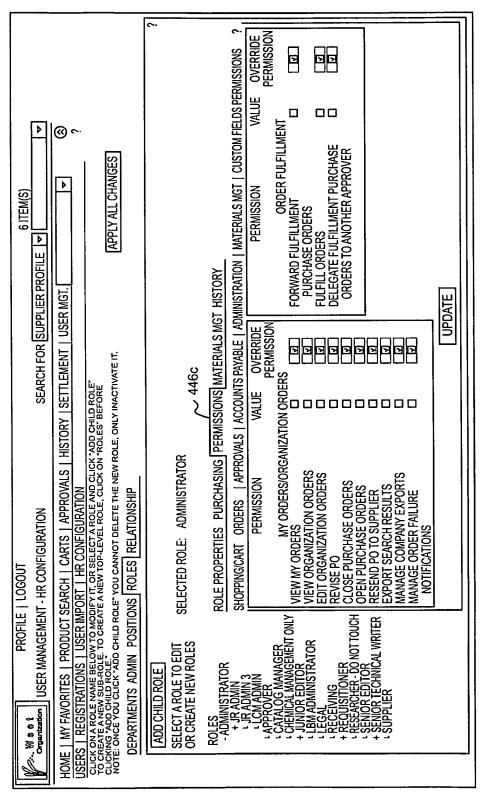


FIG. 4M

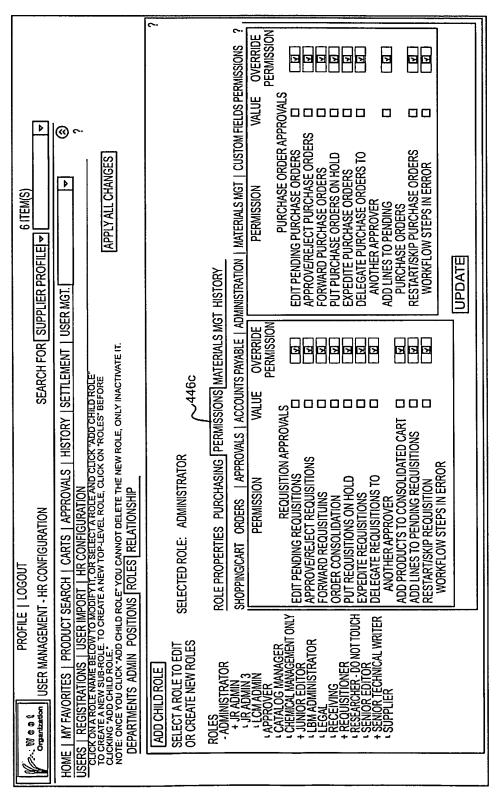
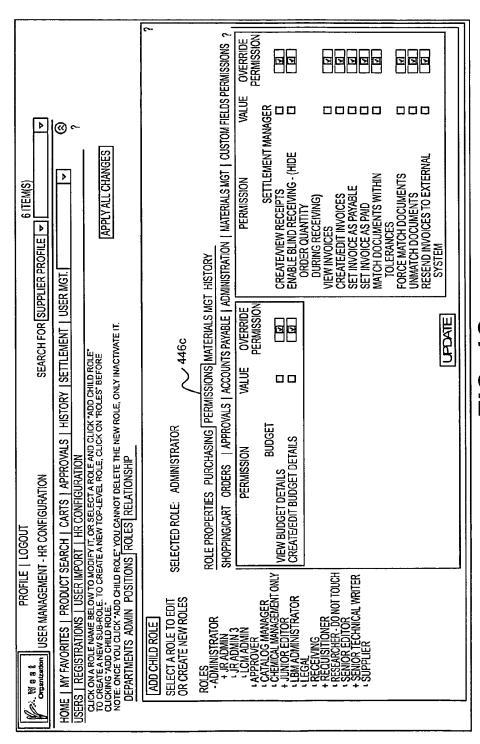


FIG. 4N



F/G. 40

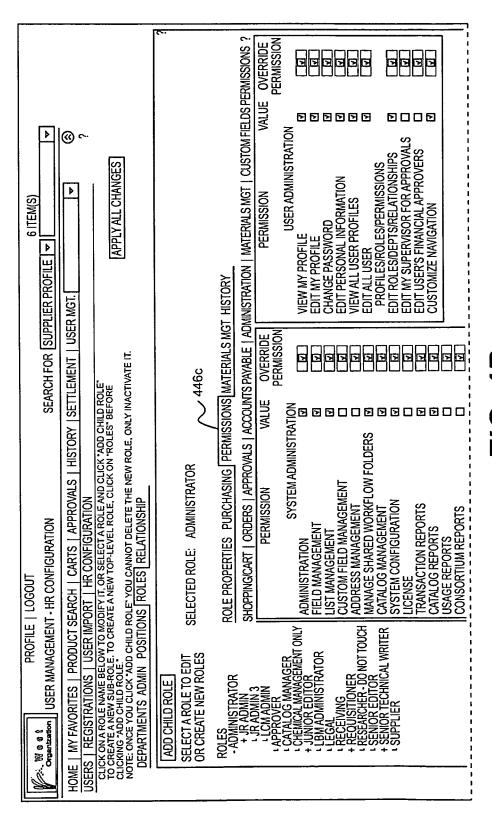


FIG. 4P

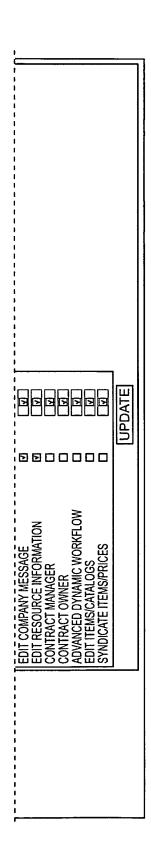


FIG. 4P (cont)

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FIG. 4Q

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FIG. 4Q (cont)

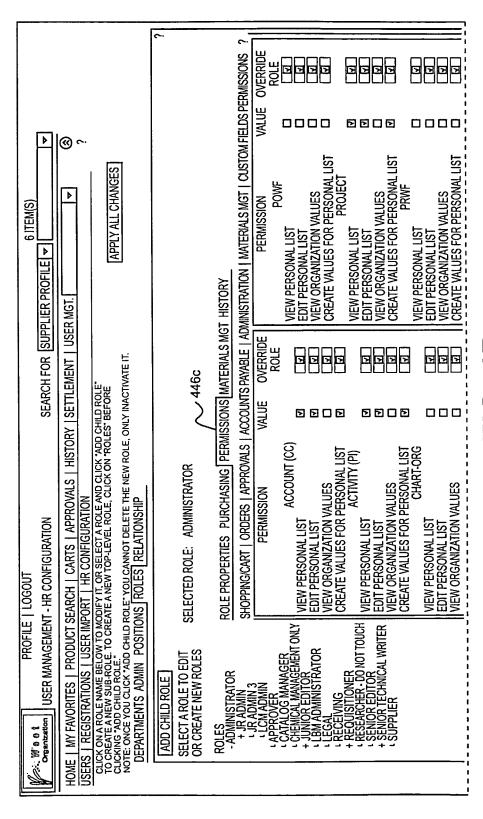


FIG. 4R

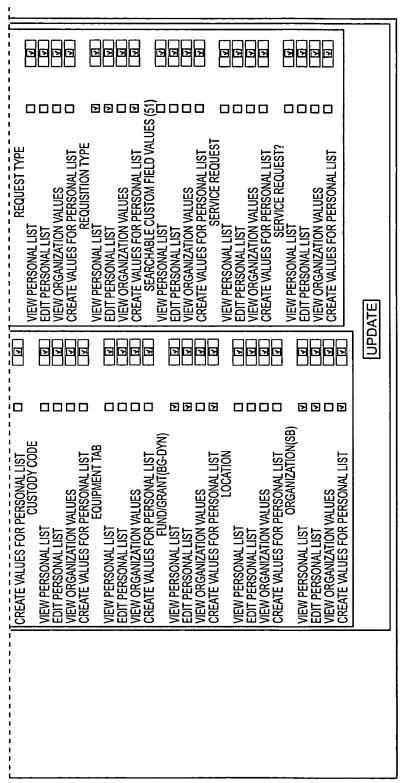


FIG. 4R (cont)

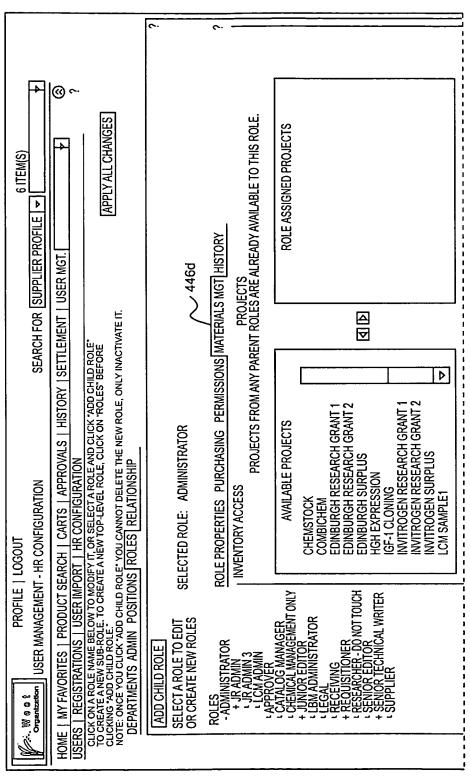


FIG. 4S

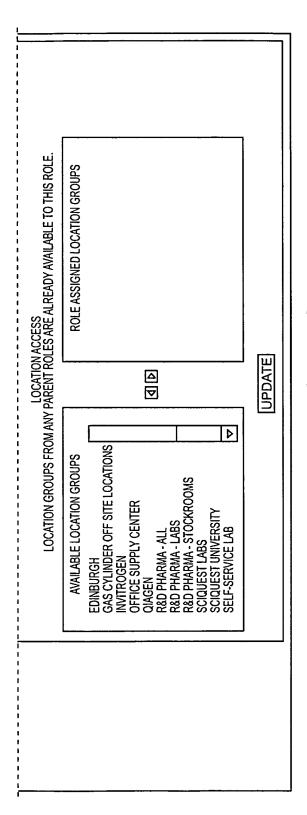


FIG. 4S (cont)

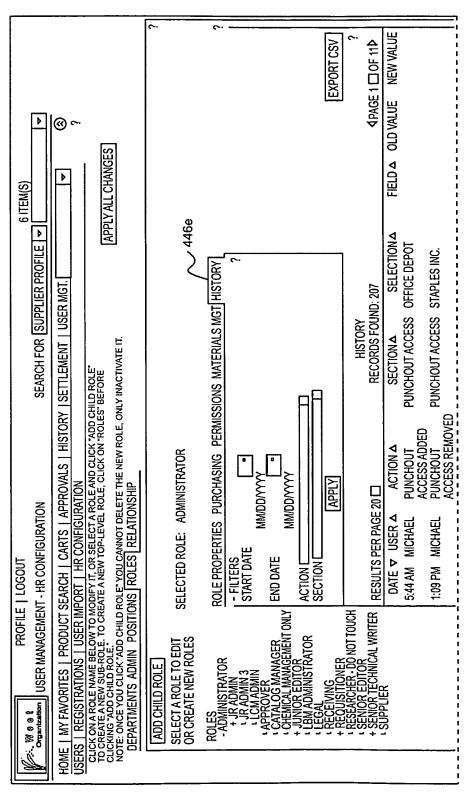


FIG. 4T

3:34 PM		PUNCHOUT	PUNCHOUT ACCESS GATEWAY, INC.	GATEWAY, INC.	1 1 1 1	1 1 1 1 1 1 1	
3:34 PM	NEIL	ACCESS REMOVED PUNCHOUT	PUNCHOUT ACCESS	XEROX			
3:34 PM	NEIL	ACCESS ADDED PUNCHOUT	PUNCHOUT ACCESS	FISCHER SCIENTIFIC			
3:34 PM	NEIL	PUNCHOUT	PUNCHOUT ACCESS	WEST PRESS			
3:34 PM	NEIL	PUNCHOUT	PUNCHOUT ACCESS	IKON OFFICE			
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7:49 AM	CHRISTINE	MODIFIED	PERMISSIONS:	WITHDRAW PR	VALUE	FALSE (INHERITED)	FALSE
7:49 AM	CHRISTINE	MODIFIED	CARI/RECOISTION PERMISSIONS:	BYPASS REVIEW	VALUE	FALSE (INHERITED)	FALSE
7:49 AM	CHRISTINE	MODIFIED	CART/RECUISITION PERMISSIONS:	ALLOW EDITING OF TAX,	VALUE	FALSE (INHERITED)	FALSE
7:49 AM	CHRISTINE	MODIFIED	PERMISSIONS:	SHIPPING AND HANDLING LINE-LEVEL EXTERNAL ATTACHMENTS	VALUE	FALSE (INHERITED)	FALSE
7:49 AM	CHRISTINE	MODIFIED	CARI/RECUISITION PERMISSIONS:	VIEW SENSITIVE CREDIT	VALUE	FALSE (INHERITED)	FALSE
7:49 AM	CHRISTINE	MODIFIED	CAR I RECOINTION PERMISSIONS:	SELECT CREDIT CARD	VALUE	FALSE (INHERITED)	FALSE
7:49 AM	CHRISTINE	MODIFIED	PERMISSIONS:	MANUALLY OVERRIDE	VALUE	FALSE (INHERITED)	FALSE
7:49 AM	CHRISTINE	MODIFIED	PERMISSIONS:	EDIT CREDIT CARD	VALUE	FALSE (INHERITED)	FALSE
7:49 AM	CHRISTINE	MODIFIED	CAK I/REQUISITION PERMISSIONS:	EDIT PO NUMBER	VALUE	FALSE	FALSE
7:49 AM	CHRISTINE	MODIFIED	CAR //RECUISITION PERMISSIONS:	EDIT USER'S CART	VALUE	FALSE	FALSE
7:49 AM	CHRISTINE	MODIFIED	CART/REQUISITION PERMISSIONS:	ASSIGN CARD TO	VALUE	FALSE (INHERITED)	FALSE
7:49 AM	CHRISTINE	MODIFIED	CART/REQUISITION PERMISSIONS: CART/REQUISITION	ANOTHER USER DO NOT PERMIT PLACE ORDER	VALUE	FALSE (INHERITED)	FALSE
RESULT	ULTS PER PAGE 20 [000				4PAGE 1	4PAGE 1 □ OF 11Þ

FIG. 4T (cont)

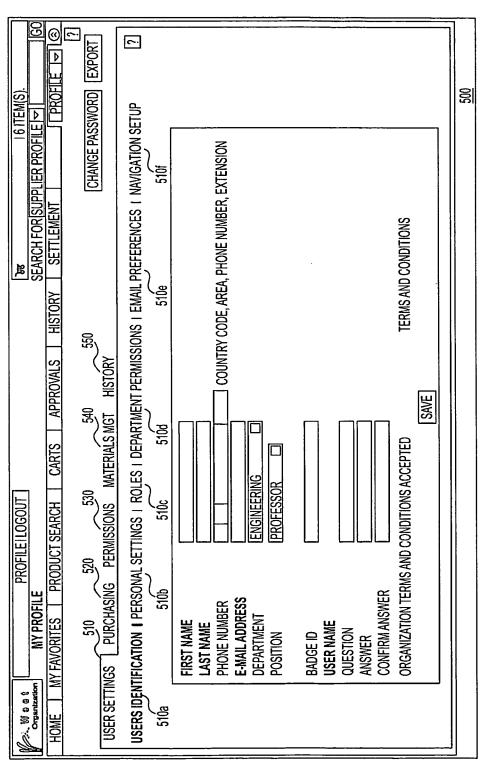


FIG. 5A

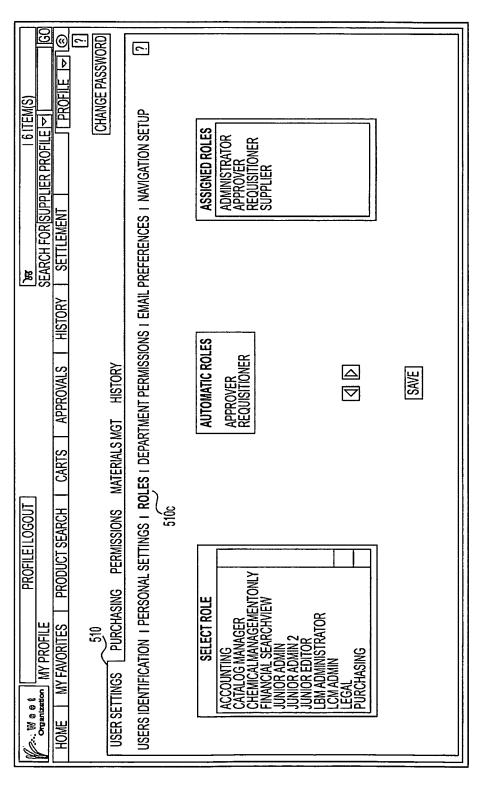


FIG. 5B

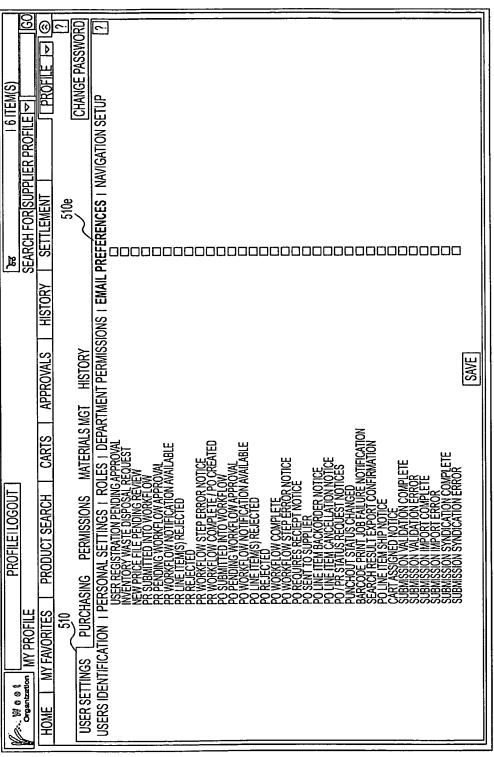


FIG. 5C

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FIG. 5D

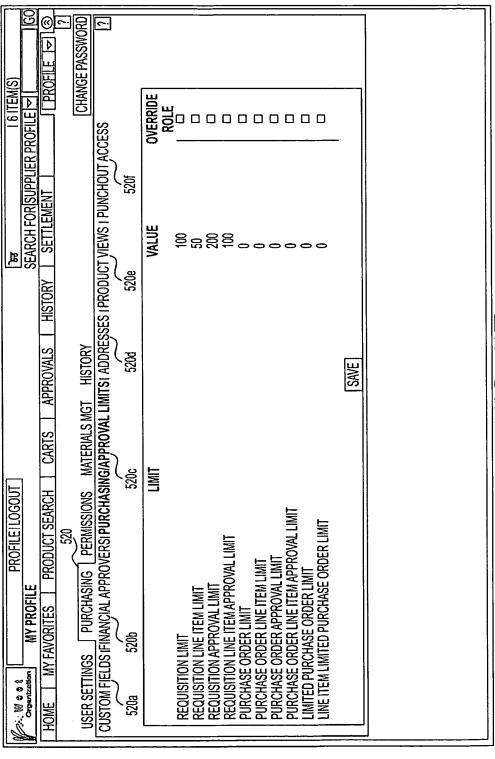


FIG. 5E

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FIG. 5F

F/G. 5G

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FIG. 5H

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FIG. 51

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W @ @ t	HOME	USER SETT	SHOPPING(P.	VIEW BUDGET DETAILS					

FIG. 5J

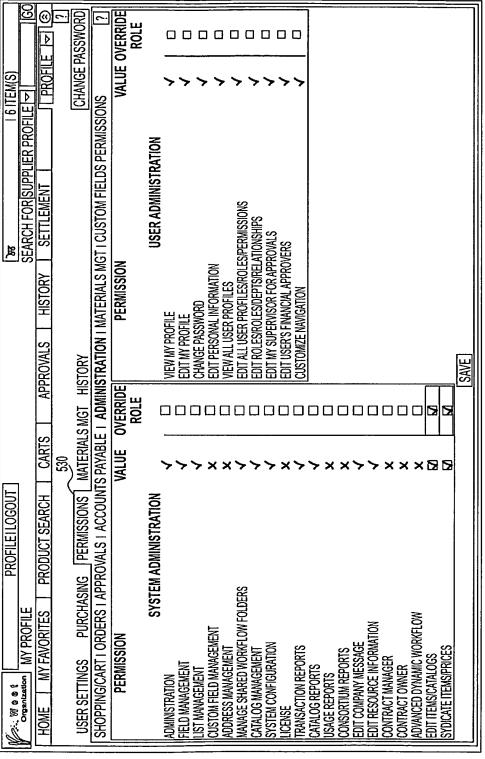


FIG. 5K

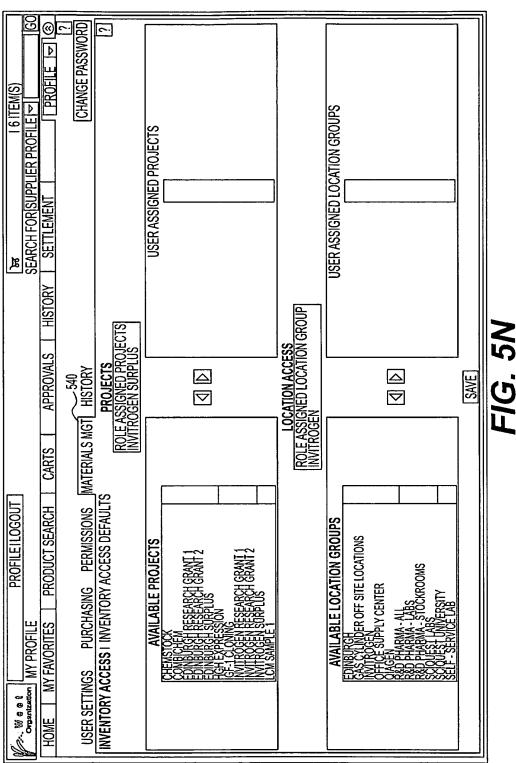
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FIG. 5L

FIG. 5M

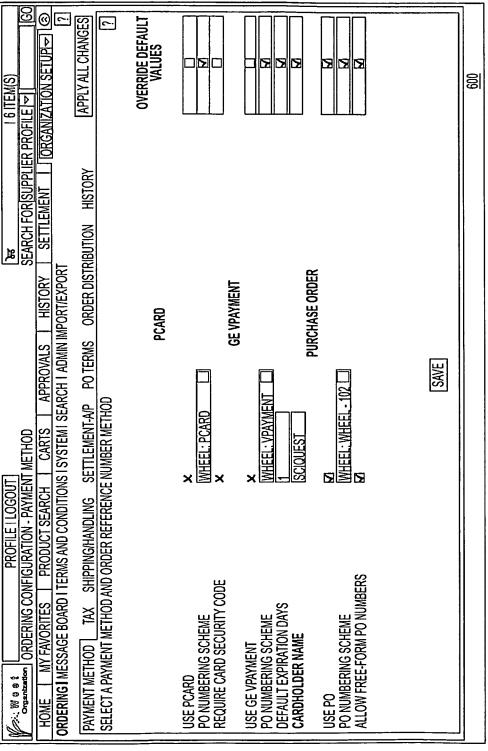
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	>			
EDIT PERSONAL LIST	>		EDIT PERSONAL LIST	
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FIG. 5M (cont)



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F/G. 50



F/G. 6A

PROFILE LOGOUT PROFILE LOGOUT SEARCH FOR SUPPLIER PROFILE	SETTLEMENT-A/P PO TERMS ORDER DISTRIBUTION HISTORY G FOR ITEMS IN THE CART	EBY DEFAULT GOVERNIDE UFFAULT VALUES ION GOVERNIDE UFFAULT VALUES ION SET BANNER X TAX RATES TAX RATES	D/OR HANDLING CHARGES TO TAXABLE ITEMS EZ D/OR HANDLING CHARGES TO TAXABLE ITEMS EZ TAXABLE AMOUNT.	NG SAVE
ORDERING CONFIGURE CONFIGURES FAVORITES FAVORITES	PAYMENT METHOD TAX SHIPPING/HANDLING 1) SET THE DEFAULT (ON/OFF) FOR THE "TAXABLE" FLA 2) TURN TAX ESTIMATION FUNCTIONALITY ON OR OFF	MARK ITEMS TAXABLE BY DEFAULT ENABLE TAX ESTIMATION ACCEPT TAX CALCULATIONS FROM SCT BANNER ENABLE AND DEFINE EITHER TAX RATE.	SELECT TO USE TAX1 TAX1 RATE SELECT TO USE TAX2 TAX2 RATE SELECT SHIPPING AND/OR HANDL BE INCLUDED IN THE TAXABLE AM	APPLY TAX TO SHIPPING APPLY TAX TO HANDLING

F/G. 6B

M(S)	ORGANIZATION SETUPI⇔ I ©	APPLY ALL CHANGES	OVERRIDE DEFAULT VALUES CO	
SEARCH FOR SUPPLIE	SELILEMEN	ORDER DISTRIBUTION HISTORY	STIMATION :D OVER A CERTAIN ORDER AMOUNT.	ED OVER A CERTAIN ORDER AMOUNT.
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F/G. 6C

	PROFILE I LOGOUT	See 16 ITEM(S)
SETTLEMENT - AP		SEARCH FOR SUPPLIER PROFILE
	PRODUCT SEARCH CARTS APPROVALS HISTORY	RY SETTLEMENT ORGANIZATION SETUPI →
ORDERING MESSAGE BOARD TERMS A	TERMS AND CONDITIONS I SYSTEM I SEARCH I ADMIN IMPORT/EXPORT	
PAYMENT METHOD TAX SHIPPING	SHIPPINGHANDLING SETTLEMENT-A/P PO TERMS ORDER DISTRIBUTION	DISTRIBUTION HISTORY APPLY ALL CHANGES
	RECEIPT PARAMETERS	
TO OVERRIDE THE DEFAULT VALUE FOR RECEIPT NU CLICK SAVE AND FOLLOWED BY APPLY ALL CHANGE	MBERING OR MATCHING PARAMETERS (MATCHING LICENSE IS TURNED ON S FOR CHANGES TO TAKE AFFECT. FOR ADDITIONAL INFORMATION, SELEC	TO OVERRIDE THE DEFAULT VALUE FOR RECEIPT NUMBERING OR MATCHING PARAMETERS (MATCHING LICENSE IS TURNED ON,) SELECT THE APPROPRIATE OVERRIDE BOX, MODIFY THE PARAMETER AND THEN CLICK SAVE AND FOLLOWED BY APPLY ALL CHANGES FOR CHANGES TO TAKE AFFECT. FOR ADDITIONAL INFORMATION, SELECT THE PARAMETER NAME OR CLICK ?
RECEIPT NUMBERING SCHEME	WHEEL: RECEIPTS	52
CONFIGURE MATCHING PARAMETERS BELOW. THESI TYPE OF MATCHING PERFORMED AS CONFIGURED IN	E PARAMETERS ARE APPLIED AT THE LINE ITEM LEVEL. TO NOT USE A PARA I THE MATCHING PARAMETERS SECTION BELOW. SELECT THIS HELP TEXT	CONFIGURE MATCHING PARAMETERS BELOW. THESE PARAMETERS ARE APPLIED AT THE LINE ITEM LEVEL. TO NOT USE A PARAMETER, LEVE IT BLANK. THESE TOLERANCES ARE ENFORCED BASED ON THE TYPE OF MATCHING PERFORMED AS CONFIGURED IN THE MATCHING PARAMETERS SECTION BELOW. SELECT THIS HELP TEXT FOR ADDITIONAL INFORMATION.
RECEIPT QUANTITY DIFFERENCE>=	% OF TOTAL QUANTITY	
RECEIPT COST DIFFERENCE>=	% OF TOTAL AMOUNT USD	
NOTIFY USER AT THE TIME OF RECEIPT CREATION	×	
	INVOICE PARAMETERS	
TO OVERRIDE THE DEFAULT VALUES FOR INVOICING CHANGES FOR CHANGES TO TAKE EFFECT. FOR ADI	TO OVERRIDE THE DEFAULT VALUES FOR INVOICING PARAMETERS, SELECT THE OVERRIDE BOX FOR THE APPROPRIATE ITEM AND THEN MODIFY ACCORDINGLY. CLICK SAVE AND THEN APPLY ALL CHANGES FOR CHANGES TO TAKE EFFECT. FOR ADDITIONAL INFORMATION, SELECT?	IND THEN MODIFY ACCORDINGLY. CLICK SAVE AND THEN APPLY ALL
INVOICING NUMBERING SCHEME	WHEEL: INVOICES	53
		. ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;

F/G. 6D

CONFIGURE MATCHING PARAMETERS BELOW. THESE PARAMET TYPE OF MATCHING PERFORMED AS CONFIGURED IN THE MATC	CONFIGURE MATCHING PARAMETERS BELOW. THESE PARAMETERS ARE APPLIED AT THE LINE ITEM LEVEL. TO NOT USE A PARAMETER, LEAVE IT BLANK. THESE TO LERANCES ARE ENFORCED BASED ON THE TYPE OF MATCHING PERFORMED AS CONFIGURED IN THE MATCHING PARAMETERS SECTION BELOW. SELECT THIS HELP TEXT FOR ADDITIONAL INFORMATION.
INVOICE QUANTITY DIFFERENCE>=	% OF TOTAL QUANTITY
INVOICE EXTENDED PRICE>=	% OF TOTAL AMOUNT USD
NOTIFY USER AT THE TIME OF INVOICE CREATION	×
	MATCHING PARAMETERS
PARAMETERS RELATED TO MATCHING ARE CONFIGURED HERE. OVERRIDDEN BY SUPPLIER FULFILLMENT CENTER WITHIN THE S WAY MATCHING INVOICE-RECEIPT) TOTAL (NOT INCLUDING, SHIP FOR ADDITIONAL INFORMATION ON EACH PARAMETER, SELECT	PARAMETERS RELATED TO MATCHING ARE CONFIGURED HERE. VALUES ARE SET ON THE ORGANIZATION SETUP>ORDRING SCREENS ARE THE DEFAULT VALUES FOR ALL SUPPLIERS. THESE VALUES ARE OVERRIDDEN BY SUPPLIER FULFILIMENT CENTER WITHIN THE POPPLIER POPPLIER FOR INVOICE FOR 2 WATCHING INVOICE-RECEIPT) TOTAL (NOT INCLUDING, SHIPPING, HANDLING, AND TAX). ONE TYPE OF MATCHING CAN BE USED AT OR BELOW THE THRESHOLD AND AND THER FOR ABOVE THE THRESHOLD. FOR ADDITIONAL INFORMATION ON EACH PARAMETER, SELECT THE PARAMETER NAME, THIS HELP TEXT, OR THE ?.
MATCHING THRESHOLD AT OR BELOW THRESHOLD ABOVE THRESHOLD	100.00 SWAY SWAY SWAY SWAY SWAY
	SHIPPING, HANDLING & TAX PARAMETERS
IF SHIPPING HANDLING, AND TAX ARE TO BE USED FOR MATCHIN VALUES FOR ALL SUPPLIERS. THESE VALUES ARE OVERRIDDEN TOLERANCES FOR MATCHING. NOTE: THE PERCENTAGE DIFFER NAME, THIS HELP TEXT, OR THE?	IF SHIPPING, HANDLING, AND TAX ARE TO BE USED FOR MATCHING CALCULATIONS, SET THE PARAMETERS IN THIS SECTION, VALUES SET ON THE ORGANIZATION SETUP-ORDERING SAND TAX AND THE ASSOCIATED TOLERANCES FOR ALL SUPPLIERS. THESE VALUES ARE OVERLIDDEN BY SUPPLIER FULFILLMENT CENTER WITHIN THE SUPPLIER. SELECT TO INCLUDE SHIPPING, HANDLING, AND TAX AND THE ASSOCIATED TOLERANCES FOR MATCHING. NOTE: THE PERCENTAGE DIFFERENCE IS RELATIVE TO THE POTOTAL (NOT INCLUDING S, H&T). FOR ADDITIONAL INFORMATION ON EACH PARAMETER, SELECT THE PARAMETER NAME, THIS HELP TEXT, OR THE?.
INCLUDE SHIPPING, HANDLING & TAX SHIPPING, HANDLING & TAX DIFFERENCE >=	X OF TOTAL AMOUNT USD SAVE

FIG. 6D (cont)

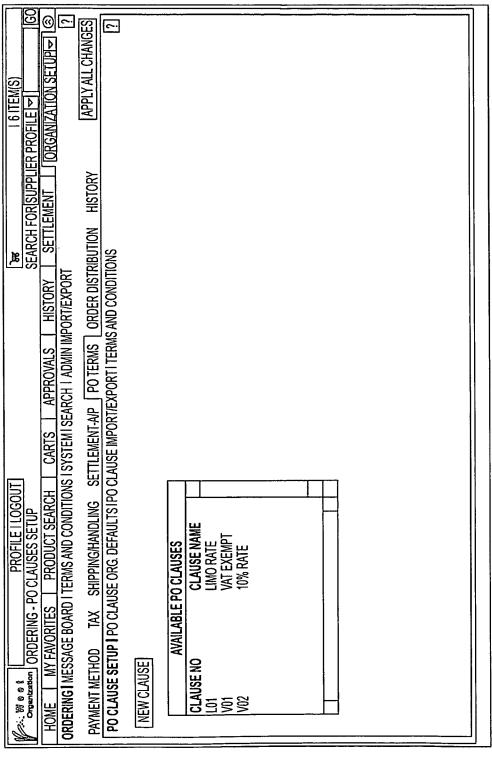


FIG. 6E

PROFILE I LOGOUT O CLAUSES ORG. DEFAULTS O CLAUSES ORG. DEFAULTS PRODUCT SEARCH CARTS APPROVALS HISTORY SETTLEMENT [ORGANIZATION SETUPING] (2) TERMS AND CONDITIONS I SYSTEM I SEARCH ADMIN IMPORT/EXPORT SHIPPING/HANDLING SETTLEMENT-A/P PO TERMS AND CONDITIONS SEARCH FOR[SUPPLIER PROFILE] ORDER DISTRIBUTION HISTORY APPLY ALL CHANGES	FOR SELECTED PO CLAUSES: [3] CLAUSE NAME CLAUSE TEXT SELECT NO ASSOCIATED CLAUSES FOR SELECTED PO CLAUSES: [30]	
PROFILE I LOGOUT Corporationational ORDERING - PO CLAUSES ORG. DEFAULTS HOME MY FAVORITES PRODUCT SEARCH CARTS APPROVALS HISTORY SEARCH CARTS APPROVALS HISTORY SEARCH SEARCH SEARCH ADMIN IMPORT/EXPORT PAYMENT METHOD TAX SHIPPING/HANDLING SETTLE/MENT-A/P PO TERMS AND CONDITIONS PO CLAUSE SETUP PO CLAUSE ORG. DEFAULTS! PO CLAUSE IMPORT/EXPORT TERMS AND CONDITIONS	CLAUSE NO	

FIG. 6F

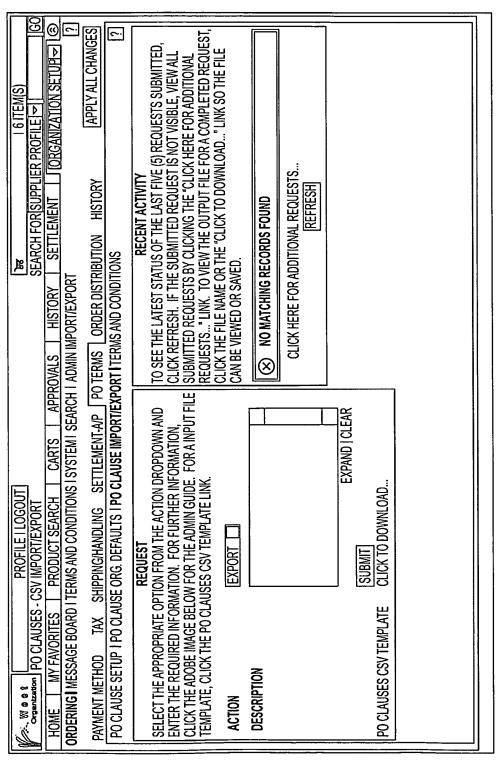


FIG. 6G

		6 ITEM(S)
PO CLAUSES - TERMS AND CONDITION	SEARCH FOR SUPPLIER PROFILE	[티즈]
HOME MY FAVORITES PRODUCT SEARCH ORDERING I MESSAGE BOARD I TERMS AND CONDITIONS	PRODUCT SEARCH CARTS APPROVALS HISTORY SETTLEMENT JORGANIZ SERMS AND CONDITIONS SYSTEM SEARCH ADMIN IMPORT/EXPORT	ORGANIZATION SETUP
PAYMENT METHOD TAX SHIPPING/HANDLING S	HIPPING/HANDLING SETTLEMENT-A/P POTERMS ORDER DISTRIBUTION HISTORY	APPLY ALL CHANGES
PO CLAUSE SETUP I PO CLAUSE ORG. DEFAULTS I PO CLAUSE IMPORT/EXPORT I TERMS AND CONDITIONS I PARAMETERS FOR PURCHASE ORDER TO THE SUPPLIER ARE CONFIGURED HERE. VALUES SET ON THE ORGANIZATION SETUP ALL SUPPLIERS. THESE VALUES ARE OVERRIDDEN BY SUPPLIER FULFILLMENT CENTER WITHIN THE SUPPLIER PROFILE. TO OY CHECKBOX NEXT TO THE PARAMETER TO BE MODIFIED. ONCE THE DESIRED VALUES ARE UPDATED, SAVE THE CHANGES AND	PO CLAUSE SETUP I PO CLAUSE ORG. DEFAULTS I PO CLAUSE IMPORT/EXPORT I TERMS AND CONDITIONS I PARAMETERS FOR PURCHASE ORDER TO THE SUPPLIER ARE CONFIGURED HERE. VALUES SET ON THE ORGANIZATION SETUP-ORDERING SCREENS ARE THE DEFAULT VALUES FOR ALL SUPPLIERS. THESE VALUES ARE OVERRIDEN BY SUPPLIER FULFILLMENT CENTER WITHIN THE SUPPLIER PROFILE. TO OVERRIDE THE DEFAULT VALUES, SELECT THE OVERRIDE CHECKBOX NEXT TO THE PARAMETER TO BE MODIFIED. ONCE THE DESIRED VALUES ARE UPDATED, SAVE THE CHANGES AND THEN APPLY ALL CHANGES. FOR ADDITIONAL	1 HE DEFAULT VALUES FOR ES, SELECT THE OVERRIDE FOR ADDITIONAL
INFORMATION ON EACH PARAMETER, SELECT THE PARAMETER T	I, SELECT THE PARAMETER NAME, IHIS HELP TEXT, OR THE ?.	OVERRIDE DEFAULT VALUES
ORDER ACCEPTANCE INSTRUCTIONS	PLEASE NOTIFY PURCHASING OF ORDERING DELAYS. PURCHASING@WEET.ORG	53
USE TERMS AND CONDITIONS (T&C'S) SELECT SUPPLIER TERMS AND CONDITIONS USE PAYMENT TERMS PAYMENT TERMS (E.G., 5% 10, NET 30) F.O.B. USE PURCHASING INFORMATION PURCHASING PHONE PURCHASING E-MAIL	X EXPAND OLEAN DISCOUNT DAYS NET 5.0 % 15 30 30 30 30 30 30 30 3	
	LOAVE.	

F/G. 6H

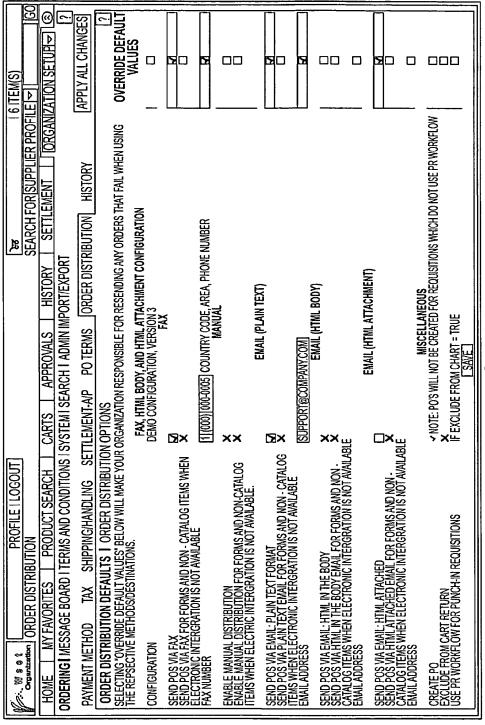


FIG. 61

)	YMENT METHOD TAX SHIPPING/HANDLING SETTLEMENT-A/P PO TERMS ORDER DISTRIBUTION HISTORY APPLY ALL CHANGES RDER DISTRIBUTION DEFAULTS I ORDER DISTRIBUTION OPTIONS PO TERMS [2] USE THE CONTROLS BELOW TO MANAGE ORDER DISTRIBUTION OPTIONS ON FORMS FOR END USERS REQUESTING PRODUCTS FROM FREE FORM SUPPLIERS. SELECT ONE OR MORE OPTIONS.					
PROFILE I LOGOUT] ORDER DISTRIBUTION HOME MY FAVORITES PRODUCT SEARCH CARTS APPROVALS HISTORY ORDERING I MESSAGE BOARD I TERMS AND CONDITIONS I SYSTEM I SEARCH I ADMIN IMPORT/EXPORT	HIPPING/HANDLING SETTLEMENT-A/P PO TERM: S I ORDER DISTRIBUTION OPTIONS I TO MANAGE ORDER DISTRIBUTION OPTIONS ON FOR MORE OPTIONS.	\(\frac{1}{2}\)	\S	₩.	[3AVE]	
PR	PAYMENT METHOD TAX SHIPPIN ORDER DISTRIBUTION DEFAULTS I OI USE THE CONTROLS BELOW TO MAI SUPPLIERS. SELECT ONE OR MORE	FAX EMAIL (PLAIN TEXT)	EMAIL (HTML BODY)	EMAIL (HTML ATTACHMENT)	MANUAL	

F/G. 6J

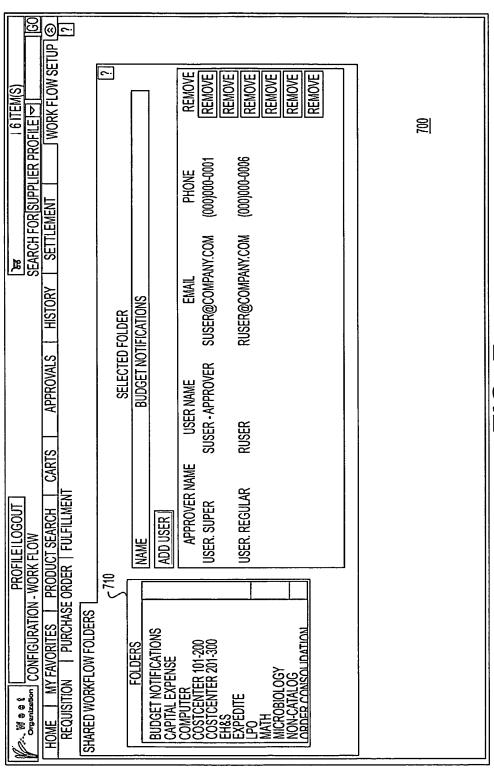
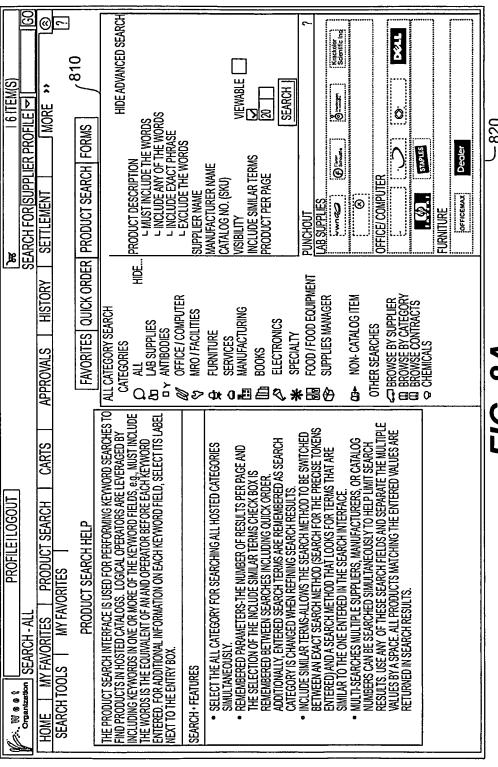


FIG. 7



F/G. 8A

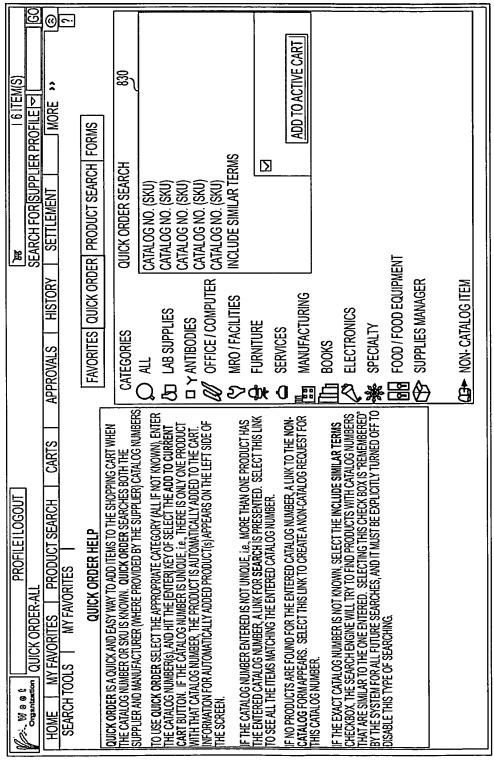
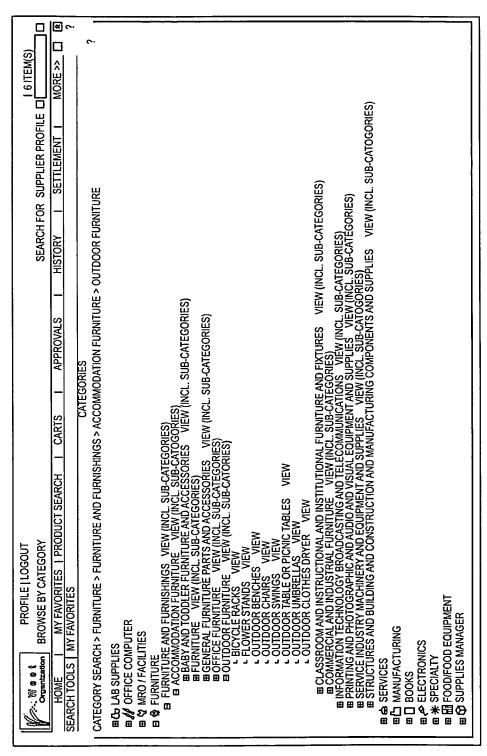


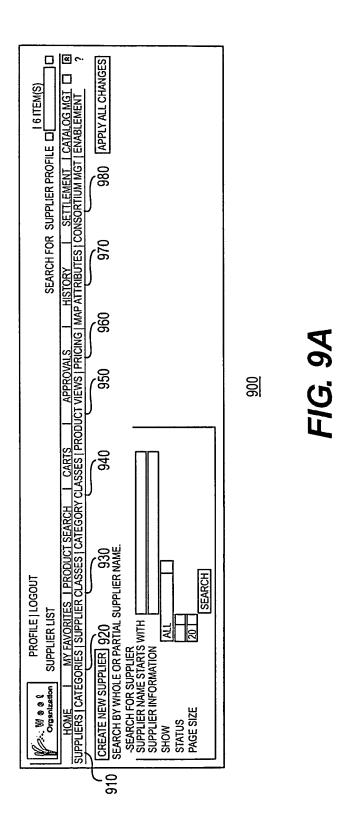
FIG. 8B

6 ITEM(S) SEARCH FOR SUPPLIER PROFILE			LEGEND ?	SUPPLIER NAME TYPE PREFERENCE	845 40 m	ABGENE, INC. / FORMERLY MARCH BIO PRODUCTS 10 12 15 15 15 15 15 15 15	4	RDS INC. TO UP THE	INC.	CAL COMPANY TO THE THE TO THE	AL AND SCIENTIFIC DO DP DE	3	ACCURATE SURGICAL & SCIENTIFIC INSTRUMENTS CORP. JASSI		## 43 0	A PAGE 14 TOF 44 b
SEAR(I APPROVALS I HISTORY			SUPPLIER SEARCH RESULTS TOTAL RECORDS FOUND: 868	TYPE PREFERENCE WEIGHT S	TH 100 ABB SEROTEC	COUPER 100 ABGENE, INC. / FOR	TI 100 ABRAXIS	中间 100 ABSOLUTE STANDARDS INC.	100 ABX DIAGNOSTICS INC.	RIM 100 ACADEMY BIOMEDICAL COMPANY	100 ACCURATE CHEMICAL AND SCIENTIFIC		FPP 100 ACCURATE SURGICAL	100 ACCUSTANDARD INC.	100 ACE GLASS INC.	
CARTS			JPPLIER SE TOTAL RE	YPE PRE	40 D	420		400	£	d _a	<u>A</u>	£	40 D	<u>A</u>	£	
PROFILE LOGOUT Organization BROWSE BY SUPPLIER HOME MY FAVORITES PRODUCT SEARCH C	- SEARCH FOR SUPPLIER SUPPLIER INFORMATION FILE SHOW TYPES FALL FILE FILE	PAGE SIZE ZO SEARCH	RESULTS PER PAGE [2017]	SUPPLIER NAME A		100 A&D WEIGHING		100 A. DAIGGER & CO DO NOT TOUCH	100 A.A.A. RAL DIAGNOSTIC STAINS AND REAGENTS CORP	100 A.G. SCIENTIFIC - DO NOT TOUCH	100 A.I. SCIENTIFIC CO. INC DO NOT TOUCH	100 AA PESCE GLASS CO.	100 AALBORG INSTRUMENTS & CONTROLS INC.	100 ABACUS SCIENTIFIC COMPANY - DO NOT TOUCH	100 ADCR GMBH & CO. KG	שבפווו דכ סבם סעכב (שני ש

FIG. 8C



F/G. 8D



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FIG. 9B

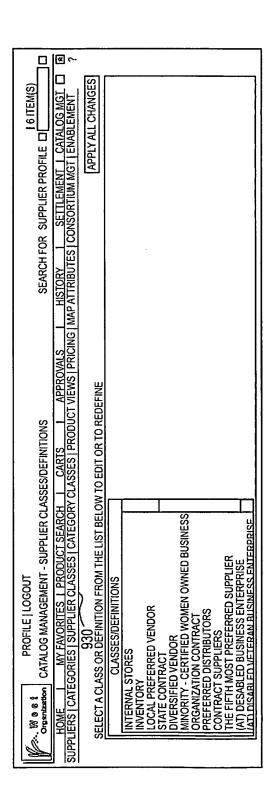


FIG. 9C

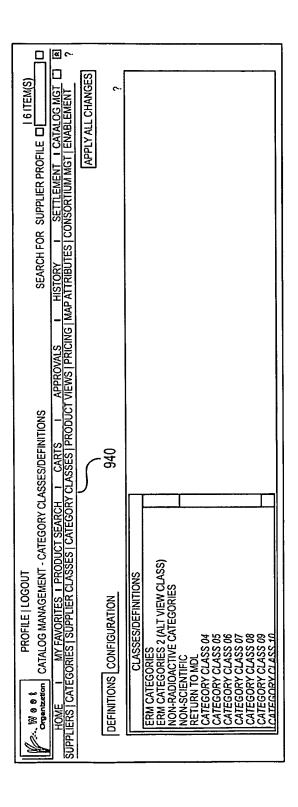


FIG. 9D

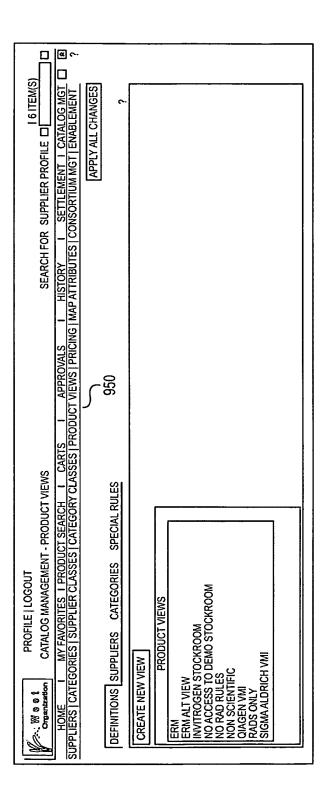


FIG. 9E

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PRICE SETS SCIENCE CATALOG	LOG PRICE REVIEW FILES	<u>ILES</u>	J	076 096			
-PRICE SET SEARCH SUPPLIER NAME/ID: PRICE SET TYPE: PRICE SET VERSION STATUS: SHOW AUDIT HISTORY OF PRICE SETS:	JS: PRICE SETS:	ALL NOT REVIEWED	SEARCH SEARCH	SEARCH FOR SUPPLIER RCH			
PRICE SET VERSIONS BECOME EFFECTIVE IMME	FECTIVE IMMEDIATELY UPON	APPROVAL. NEW PRODUCTS REQU	UIRE A SEARCH LOAD	DIATELY UPON APPROVAL. NEW PRODUCTS REQUIRE A SEARCH LOAD BEFORE THEY BECOME VIEWABLE. SEARCH LOADS ARE DONE MONDAY THROUGH FRIDAY EVENINGS.	ARE DONE M	ONDAY THROUGH FR	DAY EVENINGS.
-HIDE PRICE SET DETAILS				APPROVE SE	ELECTED	APPROVE SELECTED PRICE SET VERSIONS [7][6]	NS GO
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ო	MUNE CURRENT-1	8:37 PM	BOB TRAUB	7:23 AM		APPROVED	
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VERSION 1 CORPORAT	NOTE CORPORATE_EXPRESS_WEET_102560	DATE AVAILABLE 7:06 AM	REVIEWED BY	REVIEWED BY DATE REVIEWED DATE EFFECTIVE COMMENTS		STATUS NOT REVIEWED	SELECT
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VERSION 3	NOTE	DATE AVAILABLE 8:46 AM	REVIEWED BY	REVIEWED BY DATE REVIEWED DATE EFFECTIVE COMMENTS		STATUS NOT REVIEWED	SELECT
2		5:38 AM	BOB TRAUB	7:08 AM	1	APPROVED	

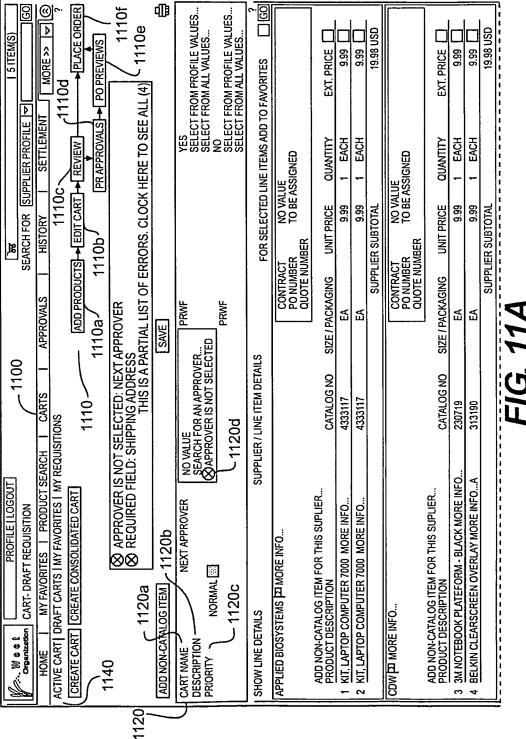
FIG. 9F

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FIG. 9F (cont)

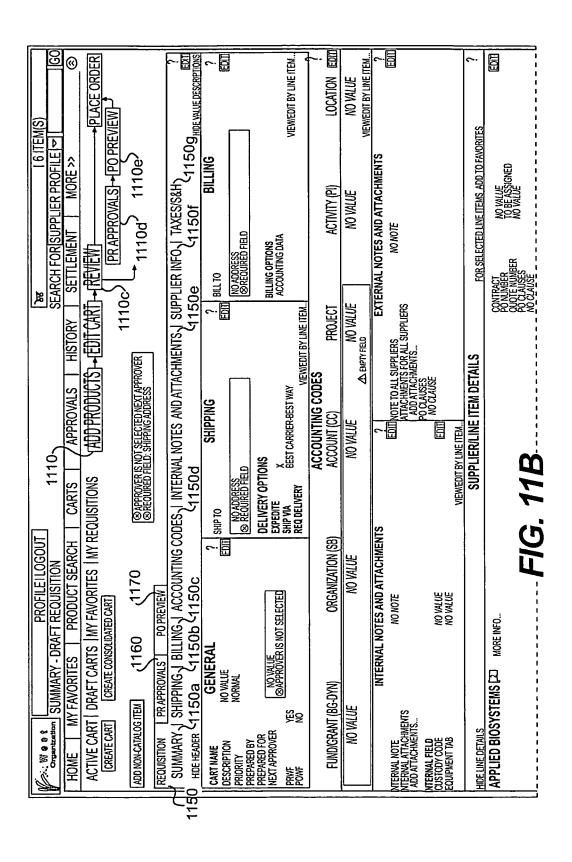
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SHOW ASSOCIATED ORGANIZATION FORMS	DRMS			
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RESULTS PER PAGE [10]		NUMBER OF CONTRACTS FOUND: 6	OND: 6	듸
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123865 0	FISHER SCIENTIFIC	FIRST CONTRACT		<i>></i>
LS-1221 0	BALLARO ENTERPRISES	S LIMO SERVICES		<i>></i>
MTH38383 0	QIAGEN, INC.	QIAGEN -MATH DEPT		<i>^</i>
Q-324243 0	QIAGEN, INC.	QIAGEN - ORGANIZATION WIDE	WIDE	>
Q98473 0	QIAGEN, INC.	QIAGEN - PURCHASING DEPT	EPT.	*
RESULTS PER PAGE [10]		NUMBER OF CONTRACTS FOUND: 6	JUND: 6	♦ PAGE 11 OF 1 ▶
		1000		

FIG. 10



HEWLETT-PACKARD COMPANY MORE INFO PO NUMBER TO BE ASSIGNED QUOTE NUMBER
THE ITEMS WERE RETRIEVED FROM AN EXTERNAL SUPPLIER SITE, THEREFORE YOU'R ABILITY TO EDIT OR VIEW THE ITEMS IN THIS APPLICATION MAY BE
LIMITED. CLICK THIS MESSAGE FOR MORE DETAILS. THE FOLLOWING LINES CANNOT BE ACCESSED ON THE SUPPLIER'S WEBSITE. CLICK THIS MESSAGE FOR MORE DETAILS. LINE(S): 5
AND NON-CATALUS I TEM FOR THIS SUPPLIER CATALOG NO SIZE / PACKAGING UNIT PRICE QUANTITY EXT. PRICE [
5 HP COMPAQ TC4400 TABLET PC ♦ MORE INFO EN358UA#ABA EA 2,099.00 1 EACH 2,099.00
SUPPLIER SUBTOTAL 2,099.00 USD
S.P. RICHARDS CO. MORE INFO CONTRACT NO VALUE PO NUMBER TO BE ASSIGNED
QUOTE NUMBER
ADD NON-CATALOG ITEM FOR THIS SUPLIER CATALOG NO SIZE / PACKAGING UNIT PRICE QUANTITY EXT. PRICE CATALOG NO SIZE / PACKAGING UNIT PRICE QUANTITY EXT. PRICE
6 LAPTOP BACKPACK WITH HANDLE, 13-1/2in W x 7in.D, x 17-1/2iNin.H BLACK 12 MORE INFO CCS55121 EA 9.99 1 EACH 9.99
SUPPLIER SUBTOTAL 19.98 USD
2,14
0000 SNIddWh
10TAL 2,148.95 USD
SEE CONFIGURATION FOR THIS REQUISITION

FIG. 11A (cont)



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	TAXABLE CAPITAL EXPENSE COMMODITY CODE REPLENISH STOCK	TAXABLE CAPITAL EXPENSE COMMODITY CODE REPLENISH STOCK	
THIS SUPPLIER	MORE INFO APPLIED BIOSYSTEMS 4333117 43-21-15-03	MORE INFO APPLIED BIOSYSTEMS 43.21-15-03	
ADD NON-CATALOG ITEM FOR T PRODUCT DESCRIPTION	1 KIT, LAPTOP COMPUTER 7000 MORE INFO MANUFACTURER PART NUMBER 4333117 UNSPSC: 43-21-15-03 MORE INFO	2 KIT, LAPTOP COMPUTER 7000 MANUFACTURER NAME MANUFACTURER PART NUMBER UNSPSC: MORE INFO	CDW [3] MOREINFO
	-	2	8

FIG. 11B (cont)

MANUFACTURER PART NUMBER UNSPSC: More info	CCS55121 COMMODITY CODE 43-21-16-00 REPLENISH STOCK	MISCELLANEOUS X	EXTERNAL NOTE	i 1	NO NOTE
			ADD ATTACHMENT PO CLAUSE NO CLAUSE	 	
				SUPPLIER SUBTOTAL TAX1	
				JAXZ SHIPPING HANDLING SLIDDI ISP TOTAL	2000 2000 2000
SHPPING HANDLING AND TAX CHARGES ARE CALCULATED AND CHARGED BY EACH SUPPLIER. THE VALUES SHOWN HERE ARE FOR ESTMATION PURPOSES, BUDGET CHECKING, AND WORKFLOW APPROVALS.	H SUPPLIER, THE VALUES SHOWN HERE ARE FOR ESTIMATION PURPO	ISES, BUDGET CHECKING, AND WORK		SUBTOTAL	- 1
				TAX1 TAX2 SHIPPING	000 000
				HANDLING TOTAL	0.00 2,148.95 USD
				SEE CONFIGU	SEE CONFIGURATION FOR THIS REQUISITION

FIG. 11B (cont)

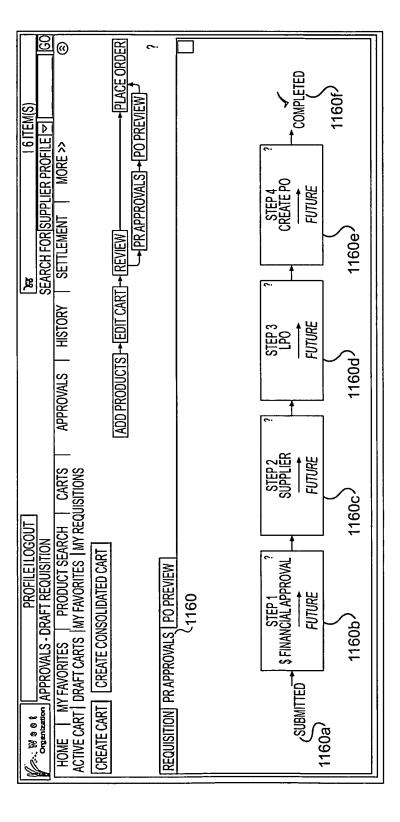


FIG. 11C

	PROFILE LOGOUT Organization PO PREVIEW - DRAFT REQUISITION		SEARCH FOR SUPPLIER PROFILE	1 6 ITEM(S)
- '``	HOME I MY FAVORITES I PRODUCT SEARCH I CARTS ACTIVE CART DRAFT CARTS MY FAVORITES MY REQUISITIONS	S I APPROVALS	LS 1 HISTORY I SETTLEMENT	T I MORE >>
	CREATE CART] CREATE CONSOLIDATED CART]	ADD P	ADD PRODUCTS - EDIT - REVIEW	PLACE ORDER
	1170 REQUISITION PRAPPROVALS PO PREVIEW		PRAPE	PR APPROVALS - PO PREVIEW
	APPLIED BIOSYSTEMS [23 MORE INFO PRODUCT DESCRIPTION	PREVIEW PO 1 CATALOG NO.	TO BI AGING UNIT P	ED ?
	1 KIT, LAPTOP COMPUTER 7000 2 KIT, LAPTOP COMPUTER 7000	4333117 4333117	EA PO SUBTOTAL TAX1 TAX2 SHIPPING HANDLING	1 EA 9.39 19.98 19.00 0.00 0.00
		0 00 WIN	PO TOTAL	19.98 USD
	ICDW TO MORE INFO PRODUCT DESCRIPTION	CATALOG NO.	TO BE ASSIGNE CAGING UNIT PRICE QU	EXT. PF
	3 3M NOTEBOOK PLATFORM - BLACK 4 BELKIN CLEARSCREEN OVERLAY	230719 313190	75.99 TAL	1EA 1EA 19.98
			TAX1 TAX2 SHIPPING HANDLING	0000
			PO IOIAL	19.88 USD
•				

FIG. 11D

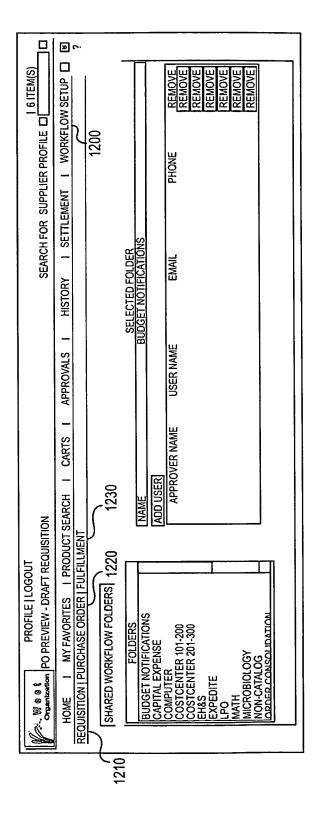


FIG. 12

I 6 ITEM(S)	IER PROFILE LI	1 MORE >> [] [8]		APPLY ACTION TO SELECTED PR(S) APPROVE/COMPLETE [GO]	?	REQUISITIONER A AMOUNT A ACTION SELECT
	SEARCH FOR SUPPLIER PROFILE LI	Y I SETTLEMENT		ON TO SELECTED PR(S		REQUISITIONER
		OVALS I HISTOR		APPLY ACTIC	REQUISITIONS FOUND: 0	PR DATE/TIME.▲
		CARTS 1 APPR	310			STATE A PRIORITY A PR DATE/TIME.
DUT	ISITIONS	ORITES I PRODUCT SEARCH I CARTS I APPROVALS I HISTORY I SETTLEMENT ORDER	PENDING REQUISITIONS (SEARCH)		1320	
PROFILE LOGOUT	APPROVALS - REQUISITIONS	MY FAVORITES 1 I	ALL PENDING RE	ION DETAILS UTE	1LS 1GE [10]	REQUISITION NO. 🗢
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FIG. 13

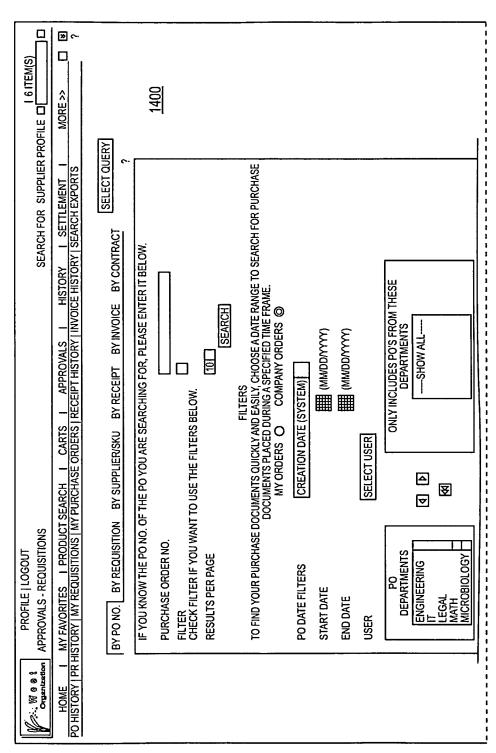
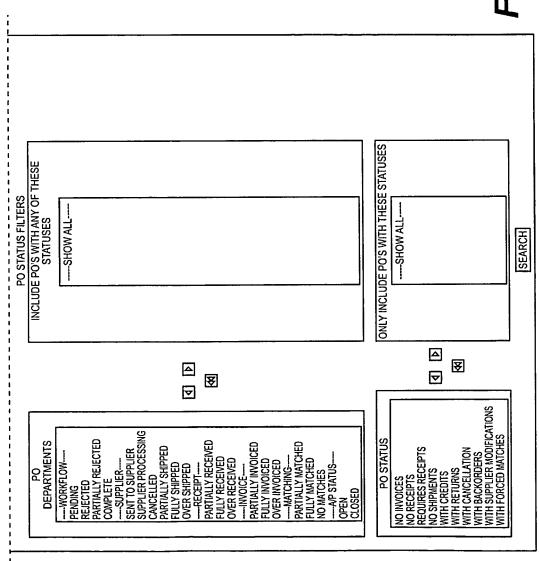


FIG. 14

FIG. 14 (cont)



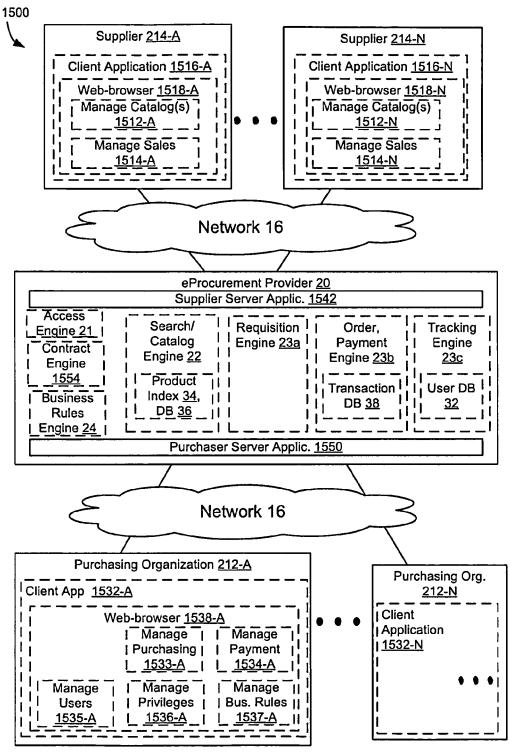


Figure 15

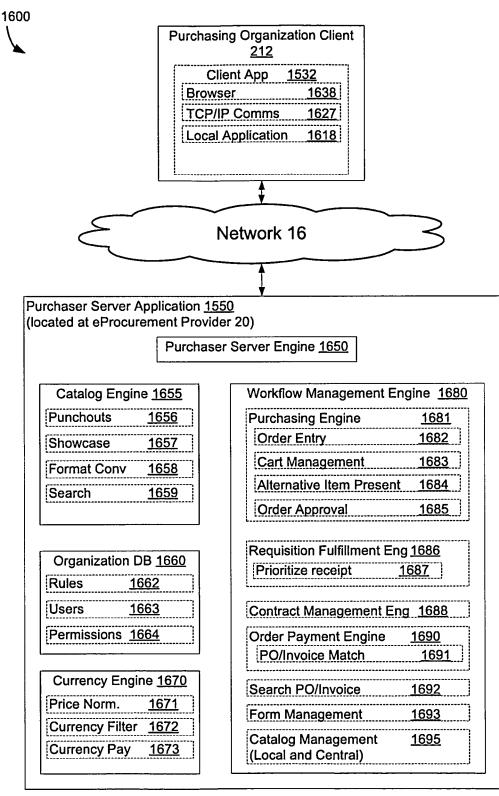


Figure 16

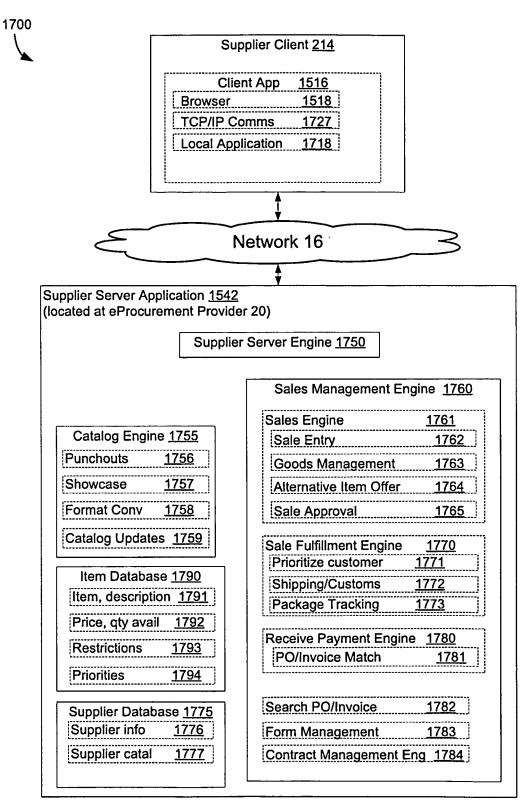


Figure 17

1800

Client App	<u>1516</u>
Web-browser	<u>1518</u>
Catalog Database 1820 Item Restrictions 1821 Catalog Updates 1822	Manage Catalog(s) L 1512 Manage Sales 1514
Form Management 1825 Required Forms 1826	
Sales Management <u>183</u> Sales Engine <u>1831</u>	<u>D</u>
Sale Entry 1833 Sale Approval 183	4
Sale Fulfillment 183 Dispute Resolution 183	5
Receive Payment Engine 1840	<u>0</u>
Send Invoice 184 Match PO/Invoice 184	
Process funds 184	

Figure 18

1900 —

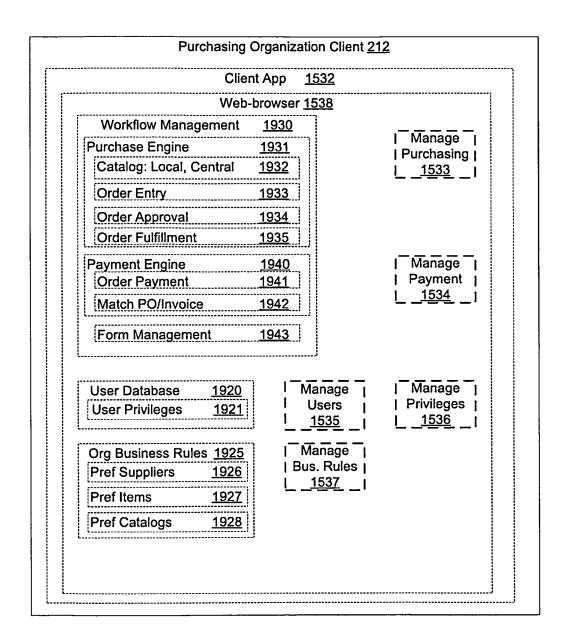


Figure 19

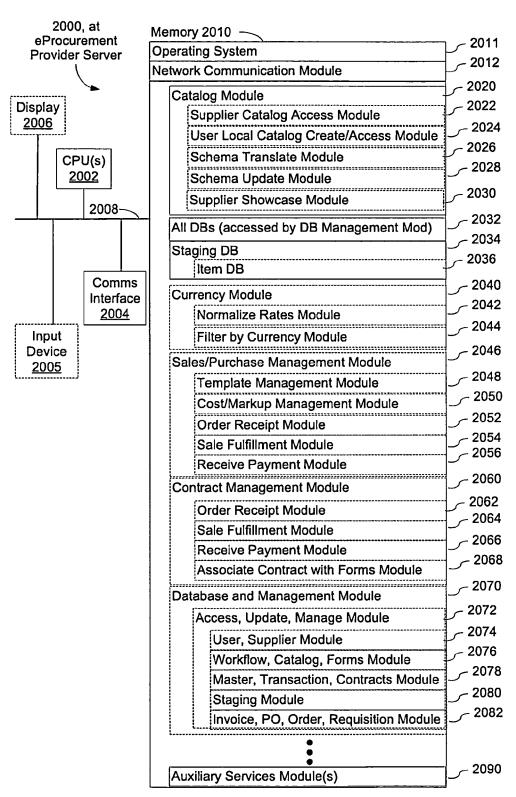


Figure 20

2100

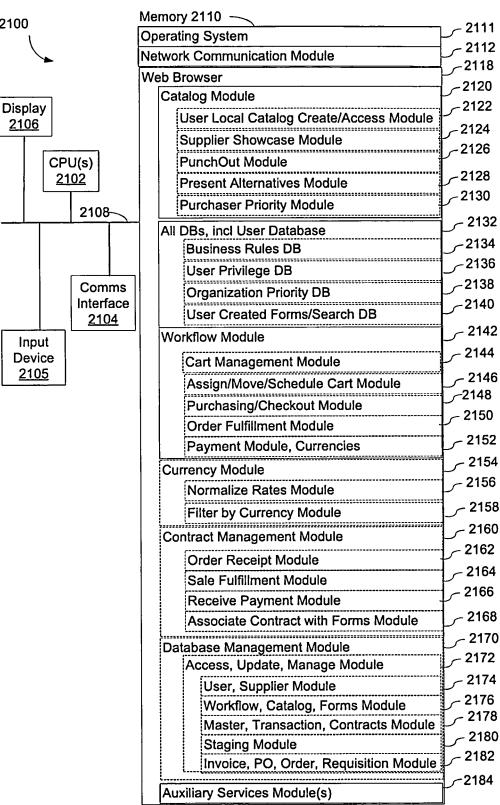


Figure 21

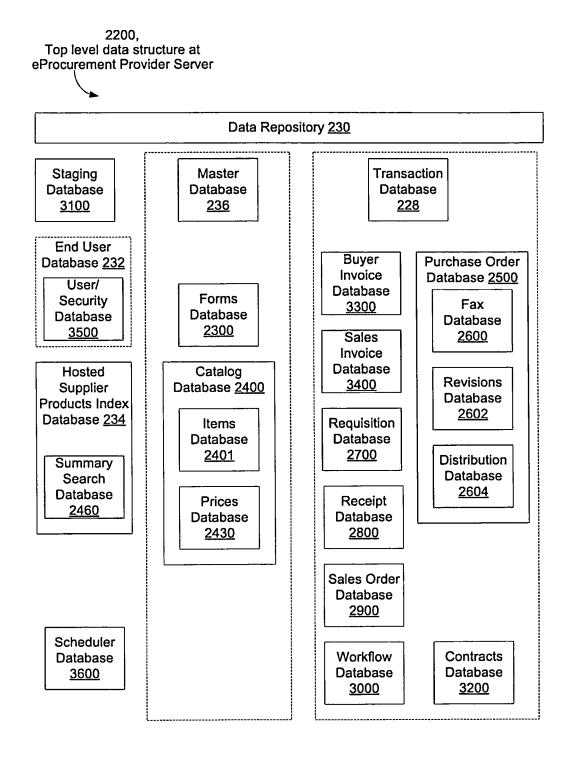
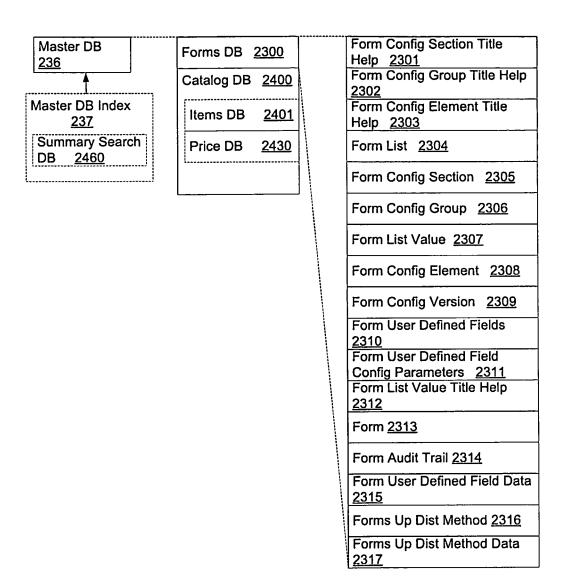


Figure 22





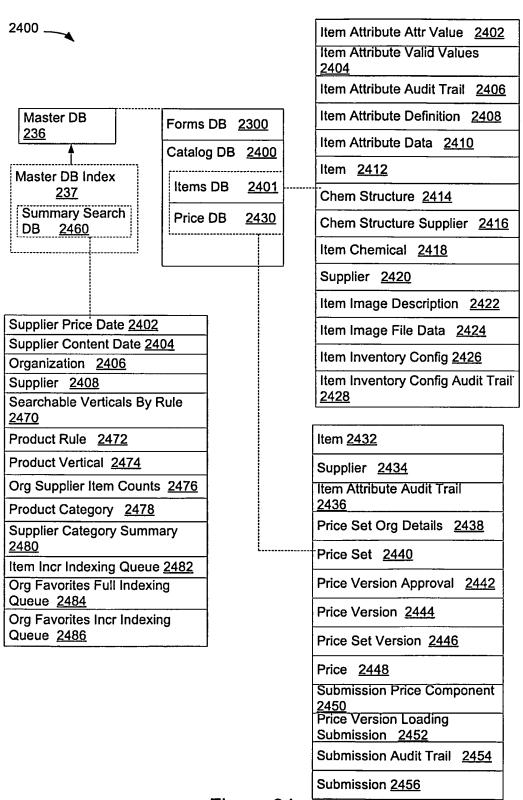
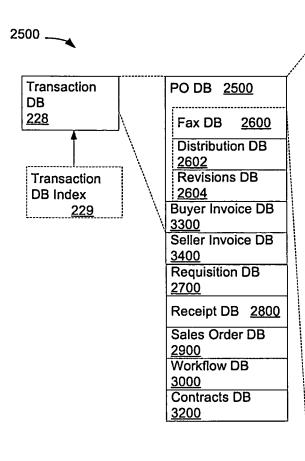
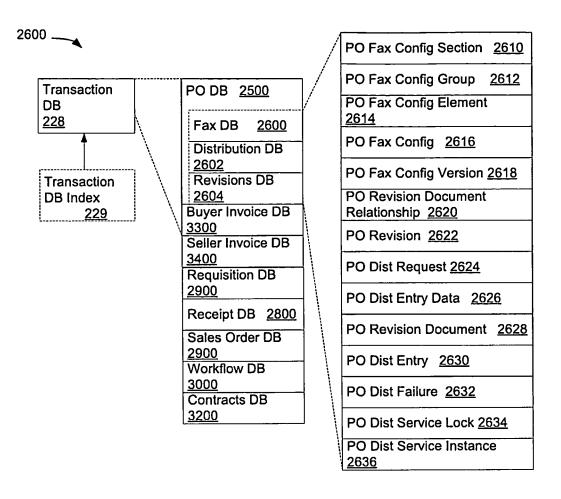
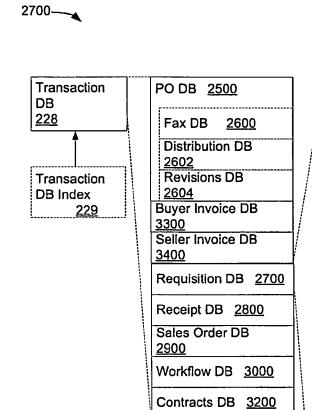


Figure 24



Config Section Title Help 2502
PO Config Group Title Help
PO Config Element Validation
<u>2506</u>
PO Audit Trail 2508
PO WF Activity History 2510
PO Config Group 2512
PO Config Section 2514
PO Config Element 2516
PO Config Version 2518
PO Config 2520
PO Summary 2522
PO Dist Method Data 2524
PO Dist Method <u>2526</u>
PO <u>2528</u>
PO Currency Exchange Rates
<u>2530</u>
Supplier <u>2532</u>
Fulfillment Center 2534
PO User Selected Approver
<u>2536</u>
PO Pending Actions 2538
PO PO Clauses <u>2540</u>
PO Line Search <u>2542</u>
PO Line <u>2544</u>
Req Line Address 2546
PO Line Product 2548
PO Credit Card 2550
PO Line Report 2552
PO CF Value Set Values 2556
PO CF Value Set Ctxt 2558
PO Line Report 2552 PO CF Value Set Values 2556 PO CF Value Set Ctxt 2558 PO CF Value Set Def 2560 PO User Selected Approver
• • • • • • • • • • • • • • • • • • • •
<u>2562</u>

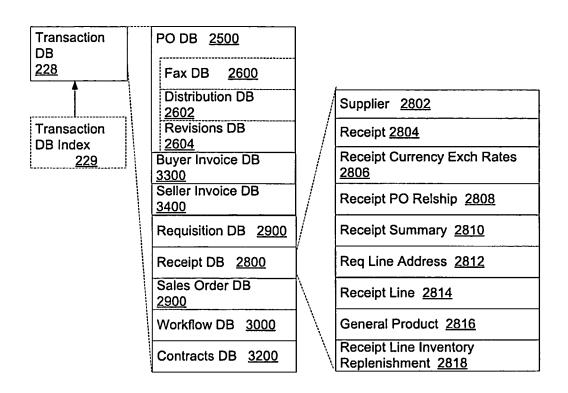


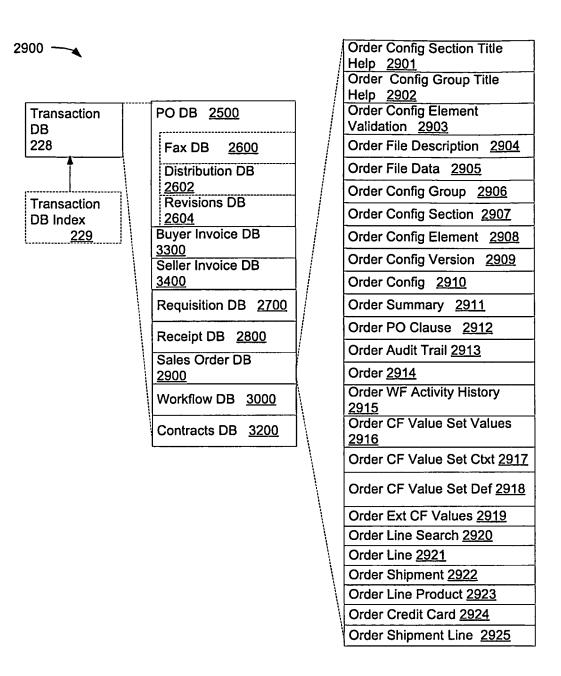


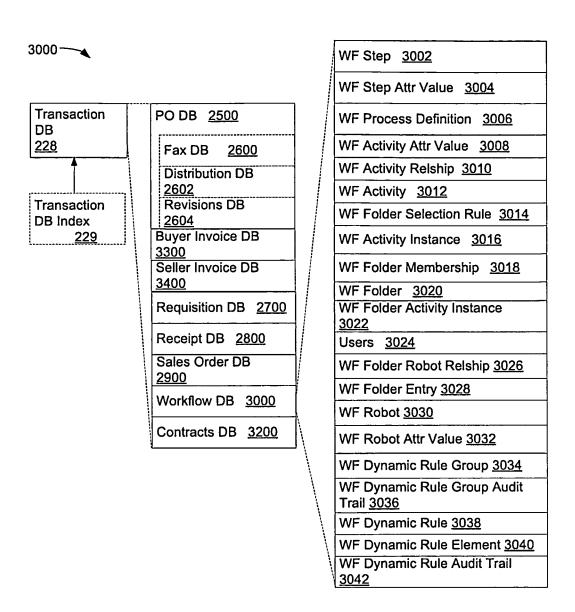
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Req Config Element Validation 2706 Req Config Section 2708 Req Config Group 2710 Req Config Element 2712 Req Config Element 2712 Req Config 2714 Req Config Version 2716 Req File Data 2718 Req Currency Exchange Rates 2720 Req Sup Dist Method Data 2722 Req Sup Dist Method Data 2724 Req WF Activity History 2726 Req Audit Trail 2728 Req Summary 2730 Requisition 2732 Req WF Activity Buffer 2734 Req User Selected Approver 2736 Supplier 2738 Fulfillment Center 2740 Req Supplier Group 2742 Req Punchout Session 2744 Req CF Value Set Def 2746 Req CF Value Set Values 2750 Contract 2752 Req Line Address Field 2758 Req Line 2760	Req Config Element Validation 2706 Req Config Section 2708 Req Config Group 2710 Req Config Element 2712 Req Config Element 2712 Req Config 2714 Req Config Version 2716 Req File Data 2718 Req Currency Exchange Rates 2720 Req Sup Dist Method Data 2722 Req Sup Dist Method 2724 Req WF Activity History 2726 Req Summary 2730 Req Summary 2730 Req Summary 2730 Req WF Activity Buffer 2734 Req User Selected Approver 2736 Supplier 2738 Fulfillment Center 2740 Req Supplier Group 2742 Req Punchout Session 2744 Req CF Value Set Def 2746 Req CF Value Set Values 2750 Contract 2752 Req Line Address 2756 Req Line Address Field 2758 Req Line Product 2762 Req Credit Card 2764 Req Line Report 2766 Req Line Report 2768	Reg Config Group Title Help
Req Config Section 2708 Req Config Group 2710 Req Config Element 2712 Req Config 2714 Req Config Version 2716 Req File Data 2718 Req Currency Exchange Rates 2720 Req Sup Dist Method Data 2722 Req Sup Dist Method 2724 Req WF Activity History 2726 Req Summary 2730 Req Summary 2730 Requisition 2732 Req WF Activity Buffer 2734 Req User Selected Approver 2736 Supplier 2738 Fulfillment Center 2740 Req Supplier Group 2742 Req Punchout Session 2744 Req CF Value Set Def 2746 Req CF Value Set Values 2750 Contract 2752 Req Line Address Field 2758 Req Line Address Field 2758 Req Line 2760	Req Config Section 2708 Req Config Group 2710 Req Config Element 2712 Req Config 2714 Req Config Version 2716 Req File Data 2718 Req Currency Exchange Rates 2720 Req Sup Dist Method Data 2722 Req Sup Dist Method 2724 Req WF Activity History 2726 Req Audit Trail 2728 Req Summary 2730 Requisition 2732 Req WF Activity Buffer 2734 Req User Selected Approver 2736 Supplier 2738 Fulfillment Center 2740 Req Supplier Group 2742 Req Punchout Session 2744 Req CF Value Set Def 2746 Req CF Value Set Values 2750 Contract 2752 Req Line Address Field 2758 Req Line 2760 Req Line Product 2762 Req Credit Card 2764 Req Line Report 2766 Req Line Report 2766 Req Line Report 2768	2704
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	Req Line Product 2762 Req Credit Card 2764 Req Line Report 2766 Req Line Search 2768	Req Line Address Field 2758
Reg Line Product 2762	Req Credit Card <u>2764</u> Req Line Report <u>2766</u> Req Line Search <u>2768</u>	Req Line <u>2760</u>
Trod Ellio I Toddor ZTOZ	Req Line Search 2768	Req Line Product 2762
Req Credit Card 2764	Req Line Search 2768	Req Credit Card 2764
Req Line Report 2766	Req Line Search 2768	Req Line Report 2766
Req Line Search 2768		Req Line Search 2768
	Req File Description 2770	

Figure 27









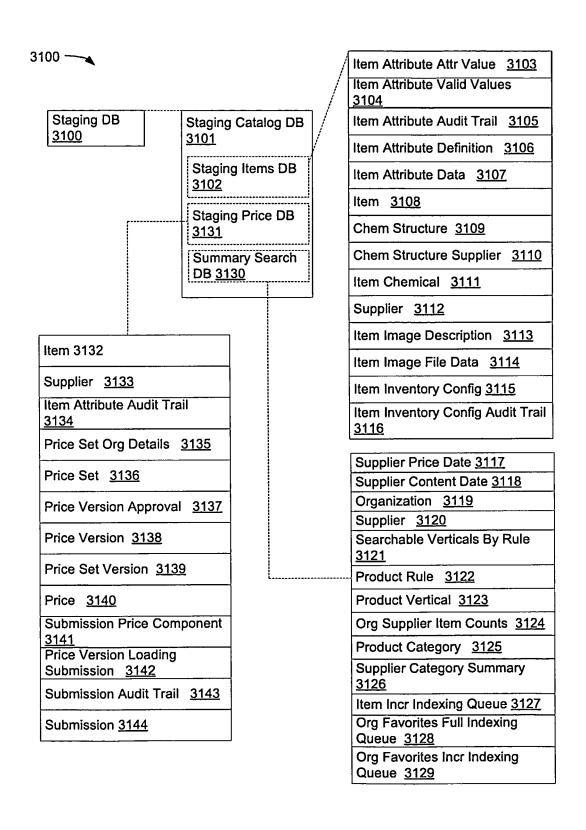
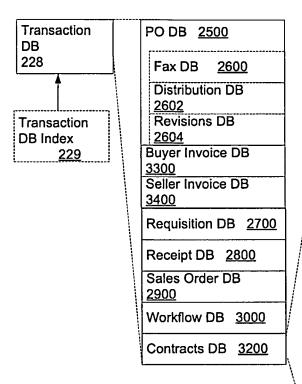
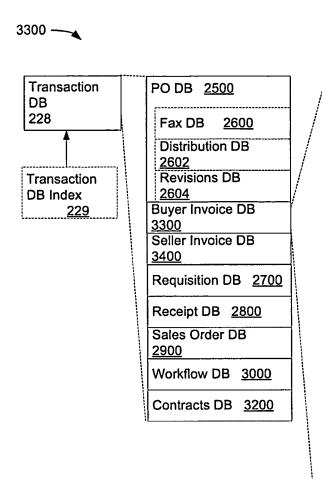


Figure 31





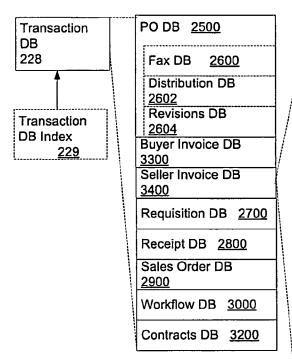
	Supplier 3201
	Form Configuration 3202
	Contract Type 3203
	Contract Form Relationship 3204
	Contract Scheduler Relationship 3205
	Contract Owner Relationship 3206
	Contract Department Relationship 3207
	Contract Fulfillment Center Relationship <u>3208</u>
	Contract Audit Trail 3209
	Contract Tier Info 3210
	Contract Budget Actual 3211
\setminus	User <u>3212</u>
-	Department 3213



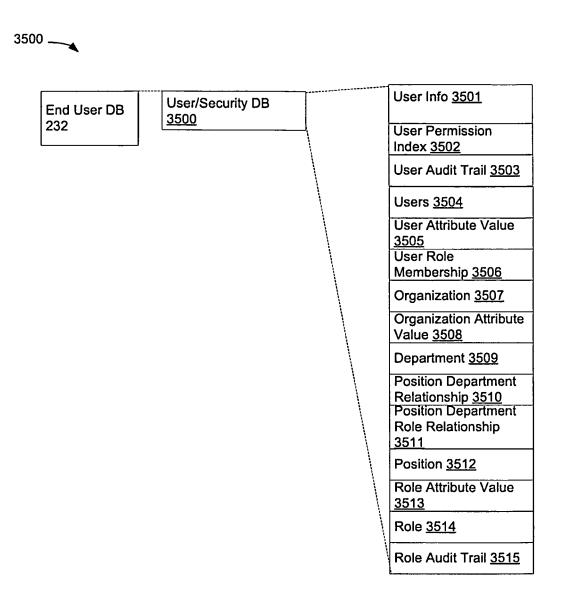
Invoice Configuration Section Title Help 3301
Title Help 3301 Invoice Configuration Section 3302
Invoice Configuration 3303
Invoice Configuration Group Title Help 3304
Invoice Configuration Group 3305
Invoice Configuration Element Validation 3306
Invoice Configuration Element 3307
Invoice Configuration 3308
Invoice Configuration Version 3309
Active Invoice Configuration Version 3310
User Selected Approver 3311
Currency Exchange Rates 3312
Invoice Audit Trail 3313
Invoice Summary 3314
Invoice <u>3315</u>
WF Activity History 3316
Supplier 3317
Invoice Line 3318
Remit To Address 3319
Pending Actions 3320
Contract 3321
PO <u>3322</u>
PO Line <u>3323</u>
Invoice Line Product 3324
Invoice CF Value Set Def 3325
Invoice CF Value Set Ctxt 3326
Invoice CF Value Set Values

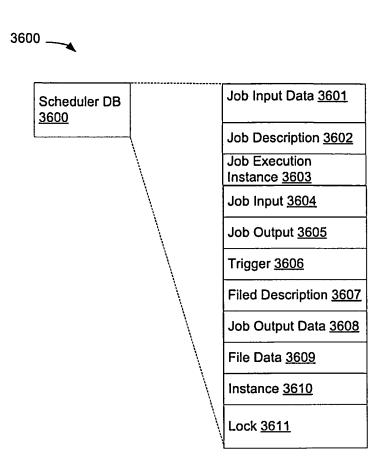
Figure 33 3327

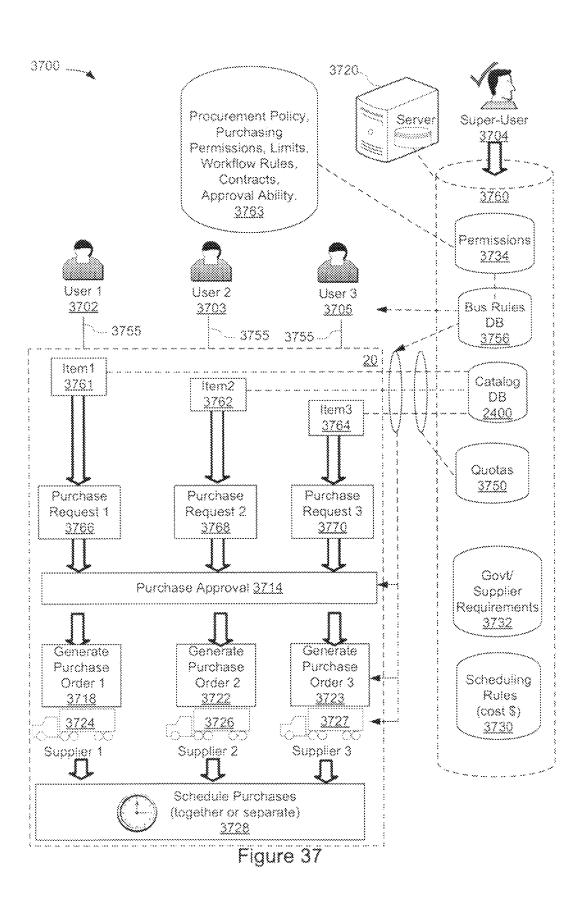




	Invoice Configuration Section
	Title Help 3401 Invoice Configuration Group
Į	Title Help 3402
١	Invoice Configure Element
ŀ	Validation 3403 Invoice Configuration Section
	3404
	Invoice Configuration Group 3405
	Invoice Configuration Element 3406
	Invoice Configuration 3407
	Invoice Configuration Version 3409
	Active Invoice Configuration Version 3410
	Supplier <u>3411</u>
	Currency Exchange Rates 3412
	Invoice <u>3413</u>
	User Default Remit To Address 3414
	Invoice Line 3415
	Remit To Address 3416
	Invoice Line Product 3417
-	Users <u>3418</u>







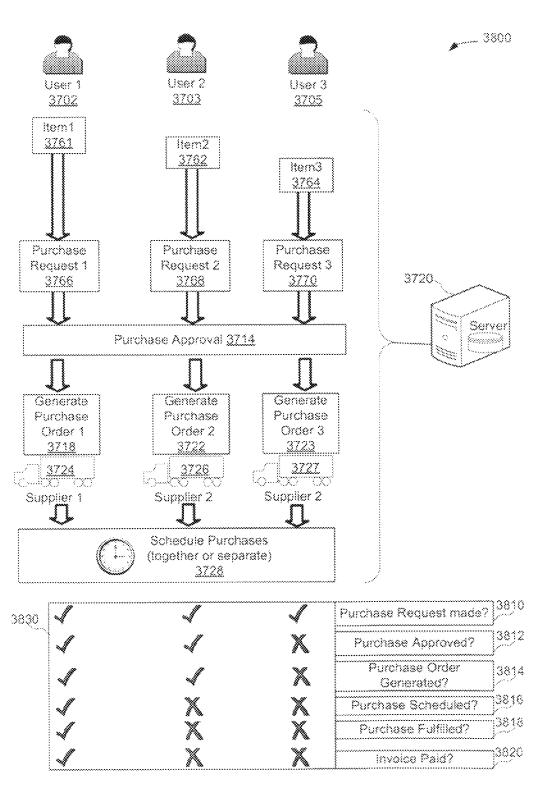


Figure 38

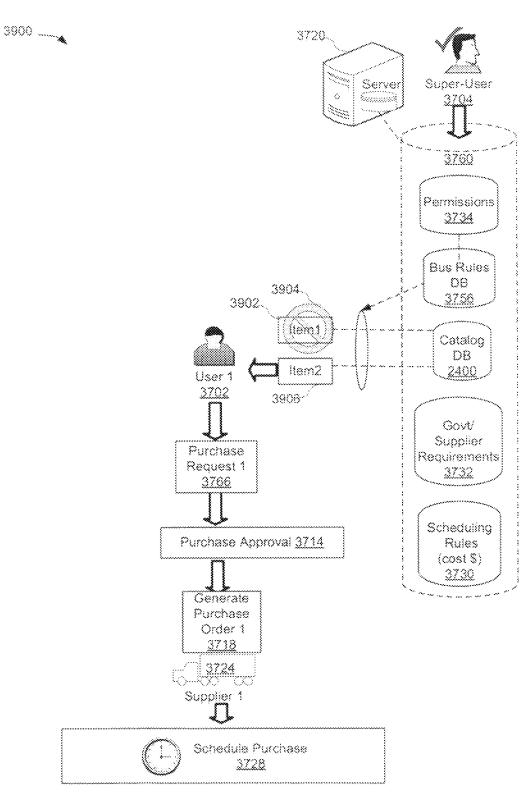


Figure 39

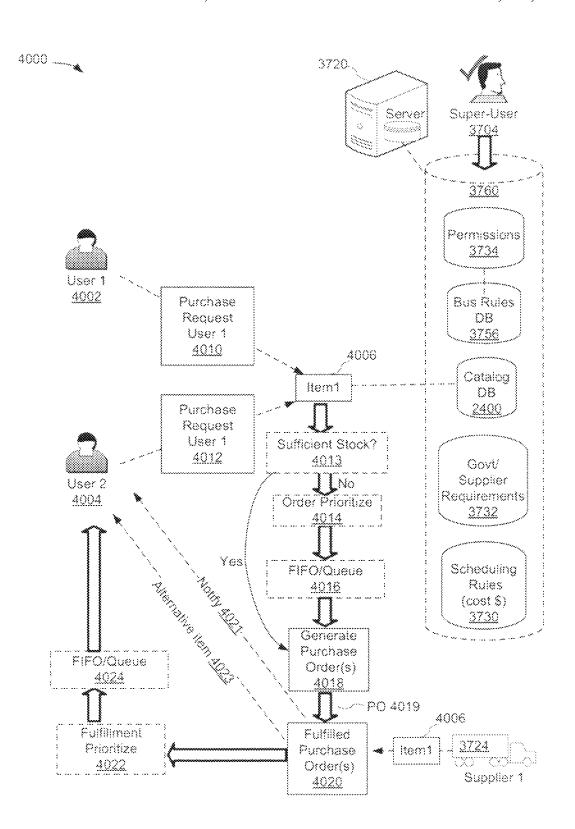


Figure 40

Jan. 26, 2016

4100 ___

		4118	4120	4122	4124
	Item	Jan	Feb	Mar	Apr
4102~	Purchase Price				
4104~	Purchase Quantity				
4106~	Date				
4108	Average Cost				
4110	Shelf Age				
4112	Markup				
4114~	Sale Price				
4116~	Inventory				

Figure 41

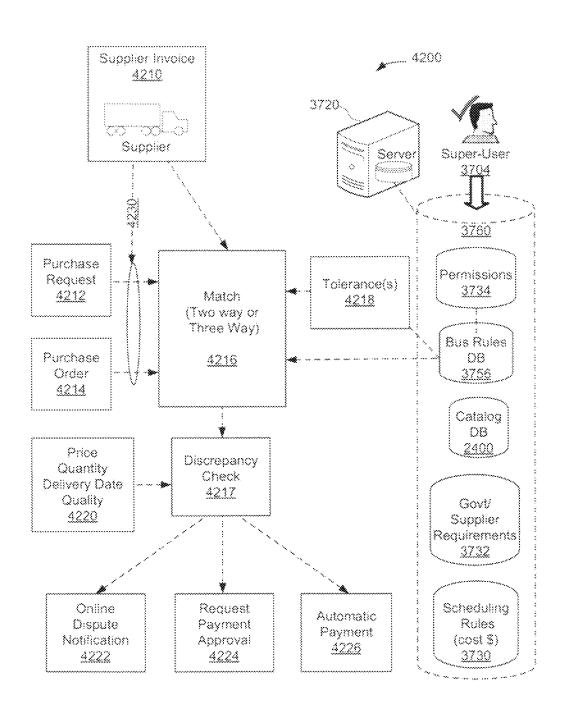


Figure 42

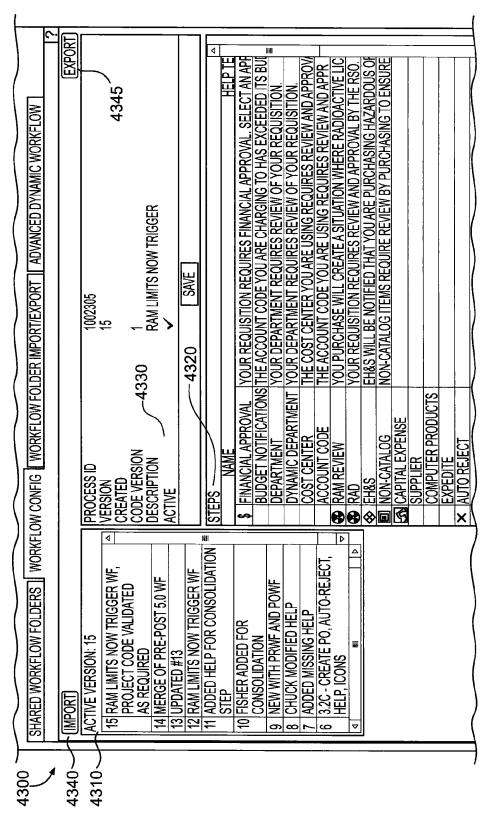
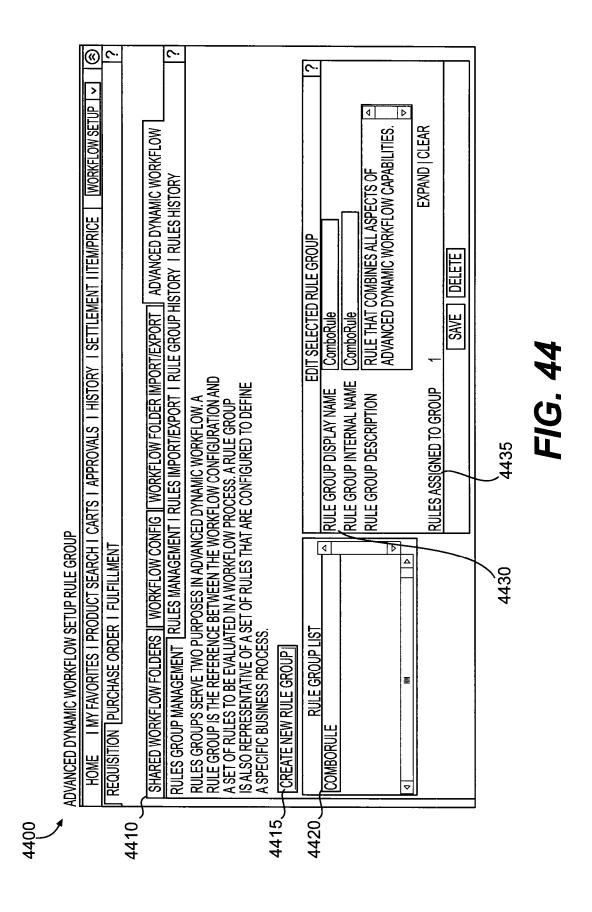
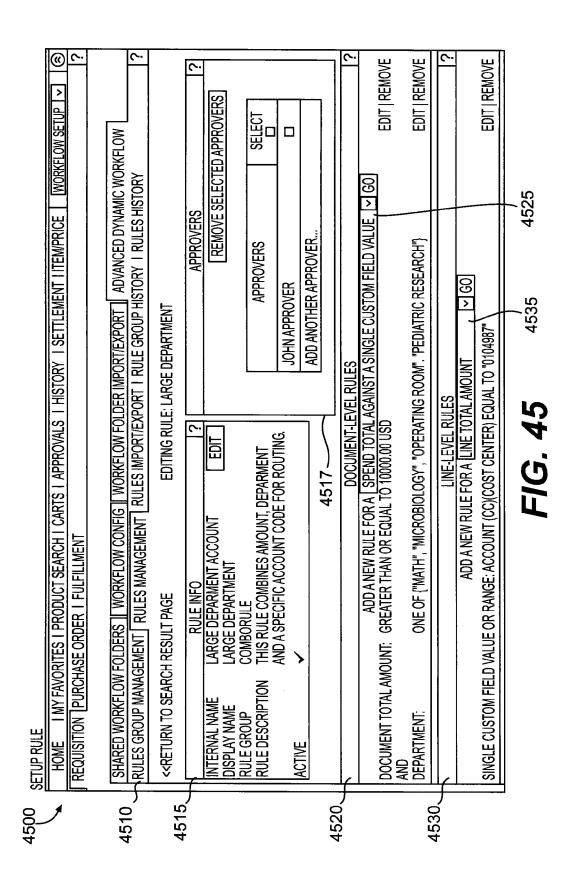
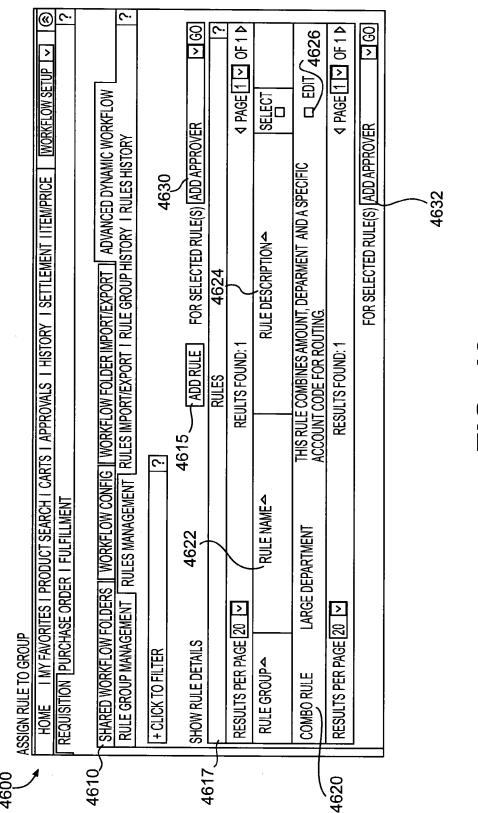


FIG. 43







F/G. 46

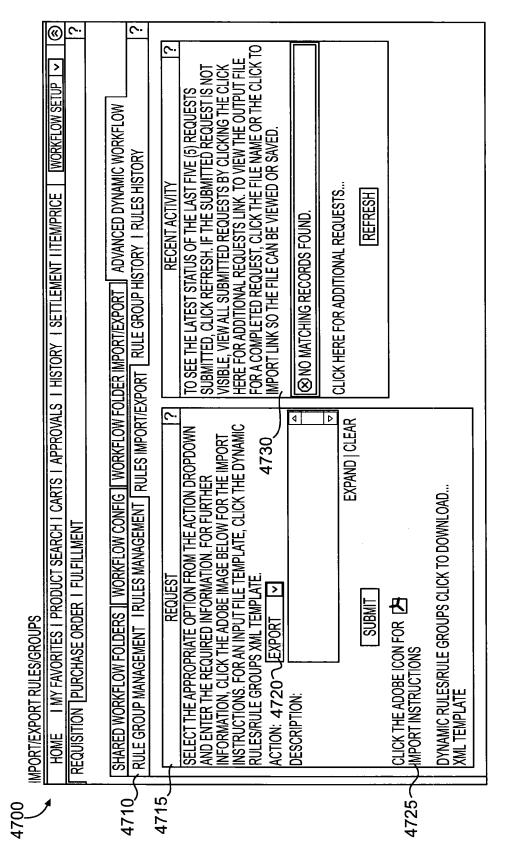
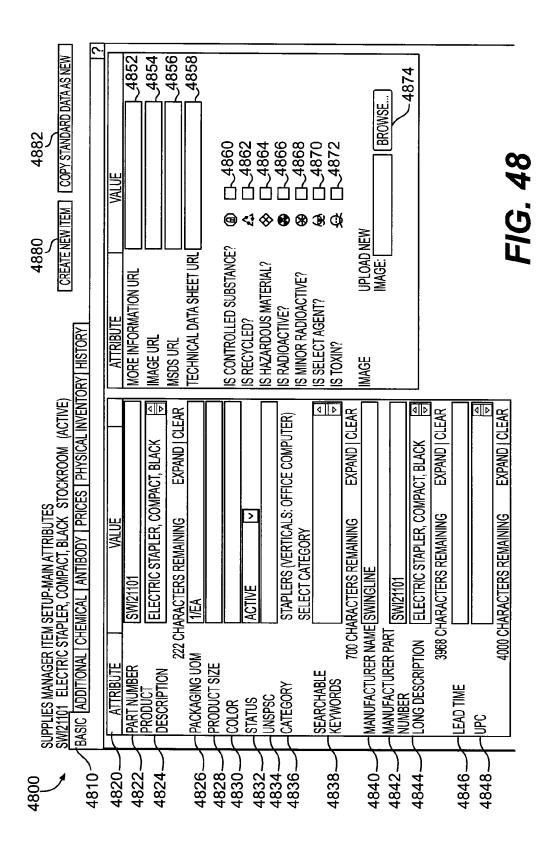


FIG. 47



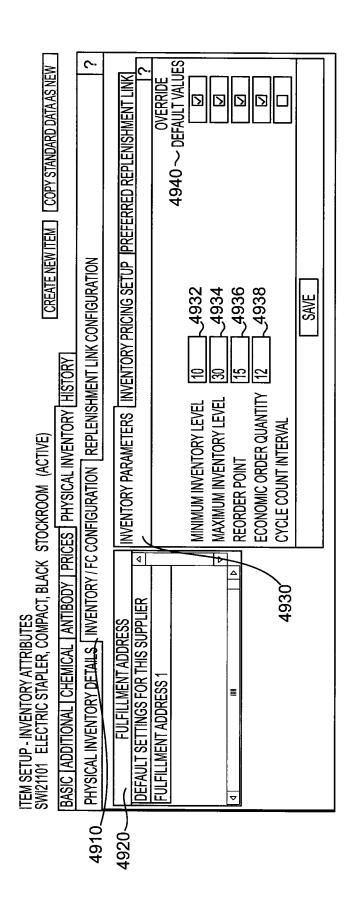


FIG. 49A

4900

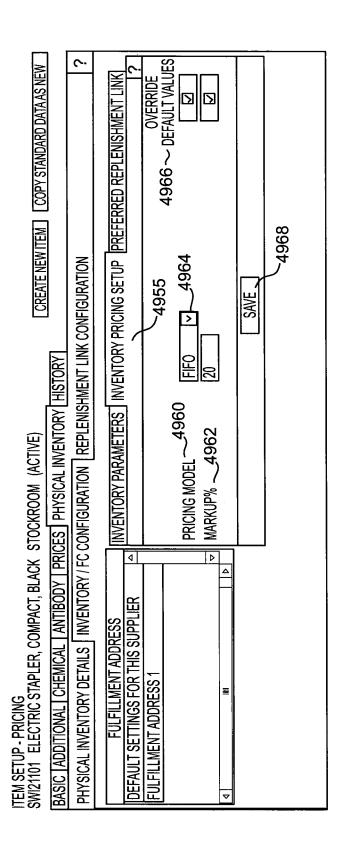
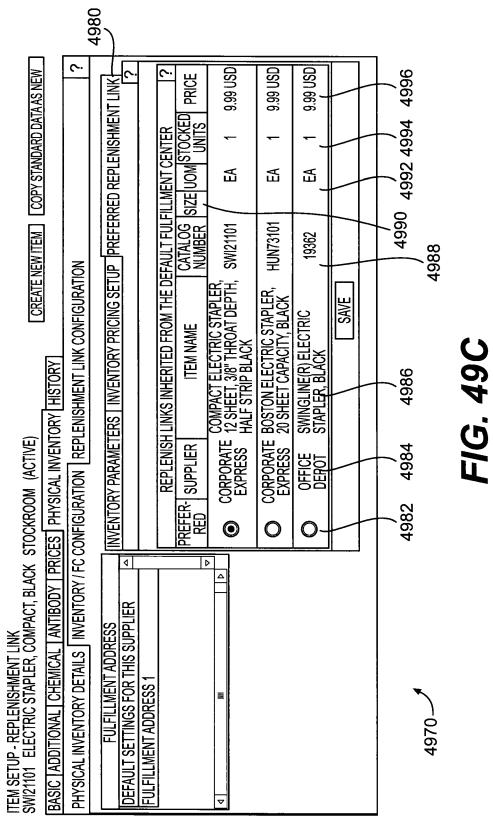
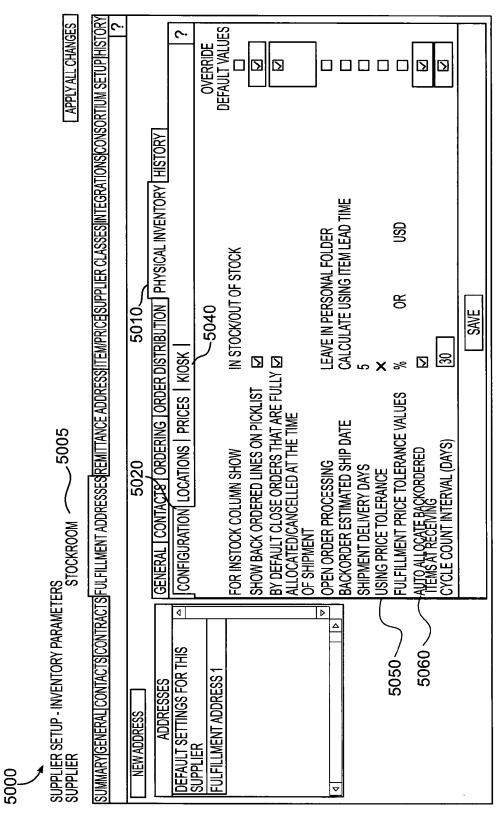


FIG. 49B

4950





F/G. 50

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I. I) EE	<u> </u>	ADD TO CART			*		LX.	- K	圣		
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ADD 7				14.4 IN 9	12.4 IN S	12.9	9.96	99.9	99.	9.99	9.96	96.6
			→ PRODUCT→ 1 SIZE	'								
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				BLACK			STRIP	CTRONIC 箇	TRIC	SWINGLINE(R) CARTRIDGE ELECTRONIC STAPLER, BLACK	RIC/	ÆAVY
		PRODUCTS FOUND	PRODUCT DESCRIPTION	MPACT, E	TERY	APLER	DHALF. CK 106	BE ELE(BLACK	E ELECT	SE ELEC	relecti SK 尚	ACITY H
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	SEA	PR PR	۵	ELECTRIC STAPLER, COMPACT, BLACK	COMPACT ELECTRIC/BATTERY STAPLER, BLACK	12-121212 DS BLACK ELECTRIC STAPLER	OFFICE DEPOT(R) BRAND HALF-STRIP ELECTRIC STAPLER, BLACK 💆	STANLEY STAPLER	SWINGLINE(R) PORTABLE ELECTRIC STAPLER, BLACK 凶	SWINGLINE(R) CART STAPLER, BLACK 🛎	SWINGLINE(R) COMPACT ELECTRIC/ BATTERY STAPLER, BLACK 酋	SWINGLINE(R) HIGH-CAPACITY HEAVY DIJITY STAPI FR. BI ACK
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FIG. 51

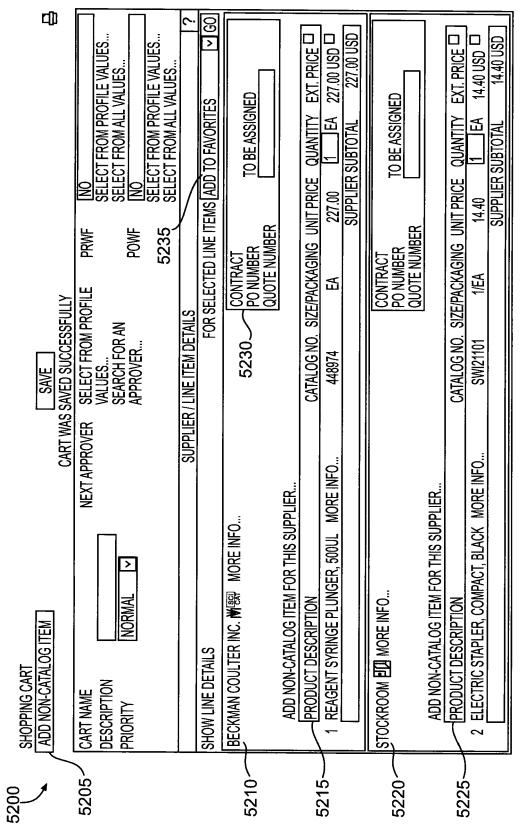
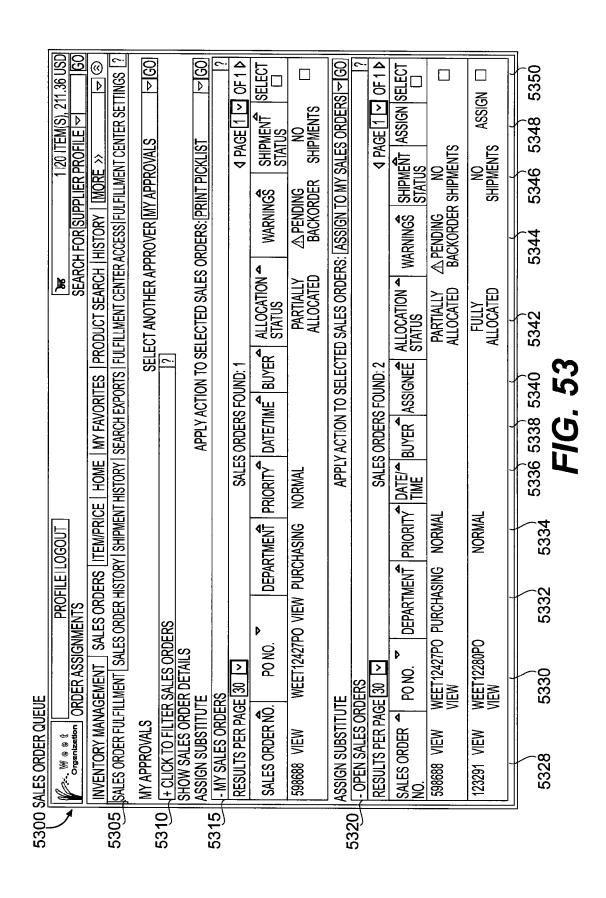
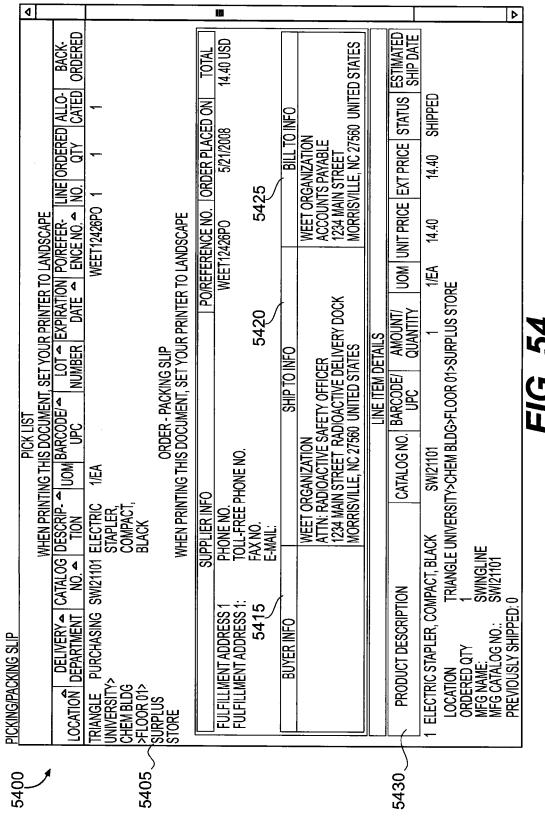
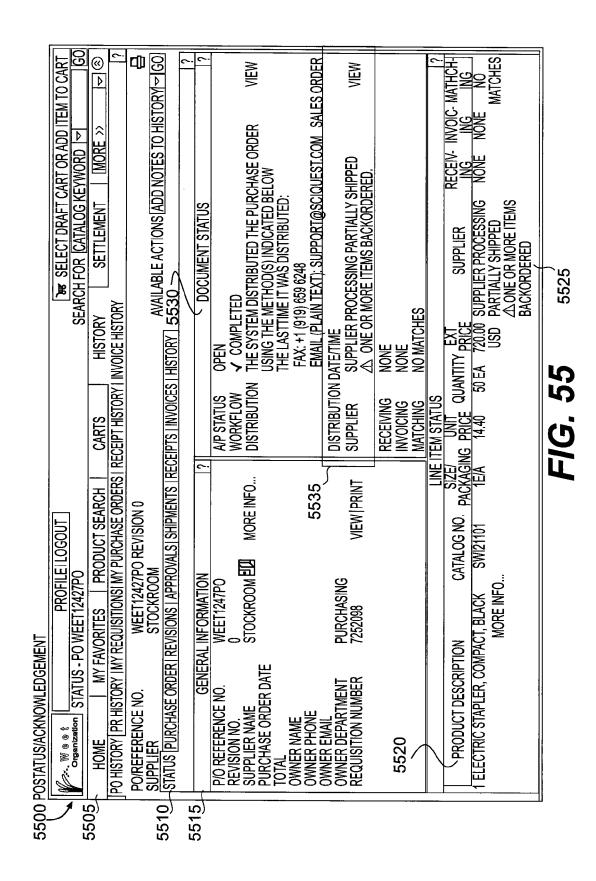
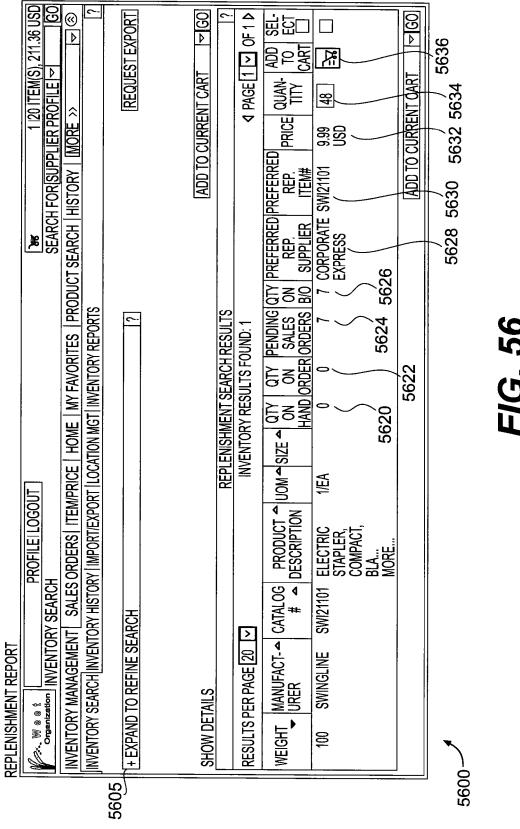


FIG. 52









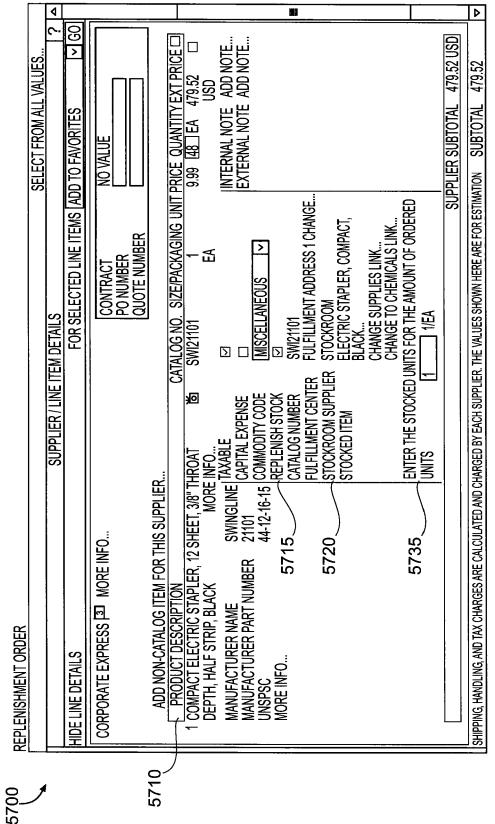


FIG. 57

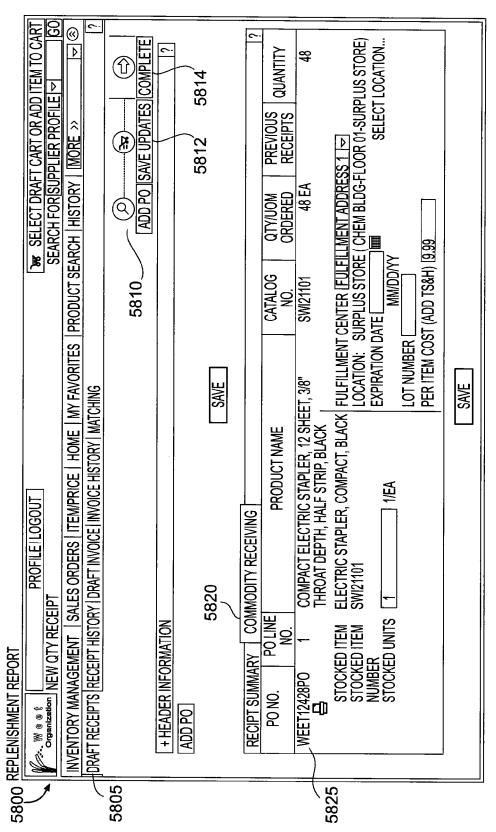
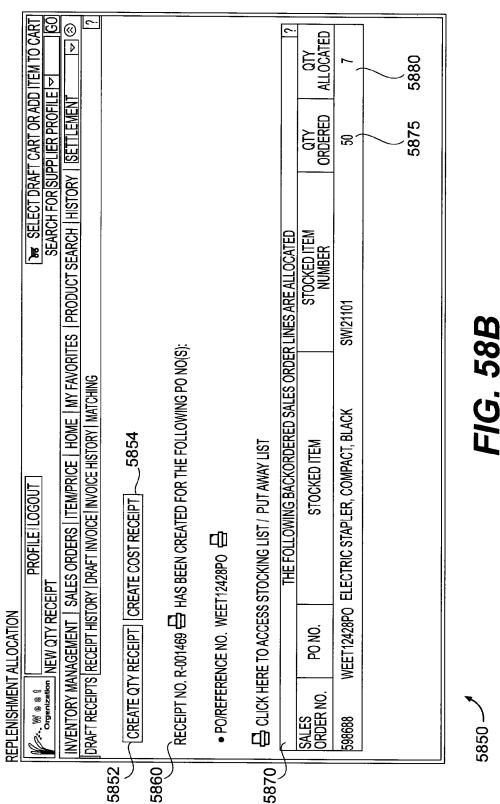
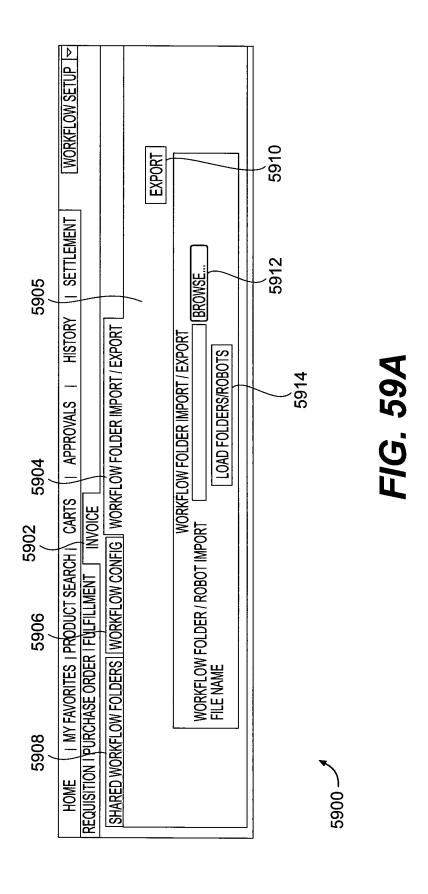


FIG. 58A





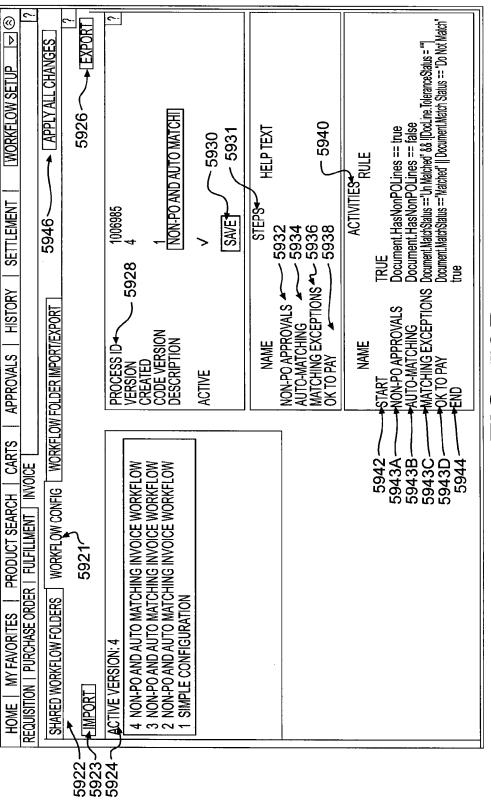


FIG. 59B

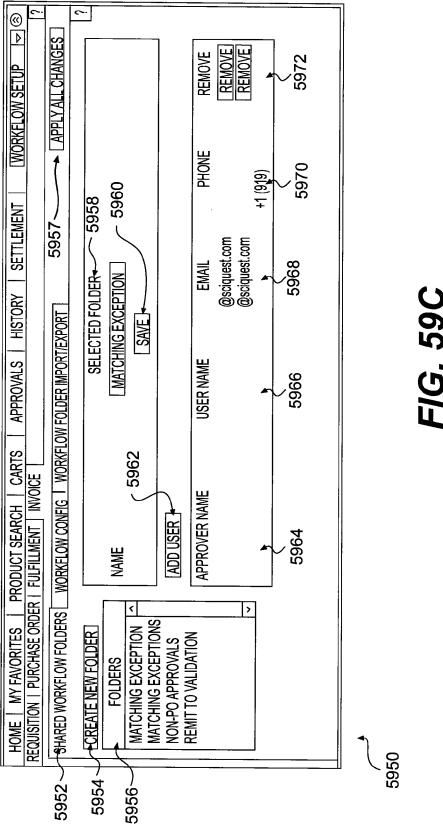


FIG. 59C

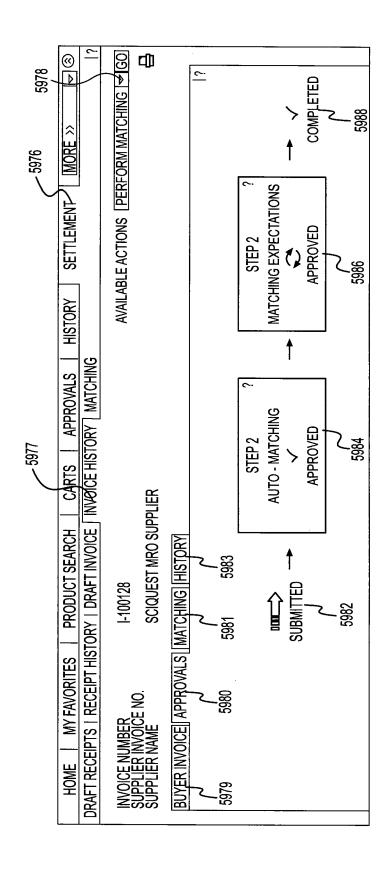


FIG. 59D

2999	HOME MY FAVORITES PRODUCT SEARCH CARTS APPROVALS / HISTORY SETTLEMENT MORE >> □ © REQUISITION PURCHASE ORDER INVOICE SALES ORDER FULFILLMENT REQUISITION OUTBOX PURCHASE ORDER OUTBOX INVOICE OUTBOX	SHOW INVOICE DETAILS APPLY ACTION TO SELECTED INVOIVE(S) [APPROVE/COMPLETE ~ [GO]]	ASSIGN SUBSTITUTE LMY INVOICE APPROVALS RESULTS PER PAGE 10 > 1	INVOICE NO. → STATE SUPPLIER INVOICE SUPPLIER NAME → INVOICE DATE → TYPE → AMOUNT DUE DATE → DATE ADDISCOUNT ACTION SELECT	INVOICE 25,495.00 USD APPROVE 5996 5996	APPLY ACTION TO SELECTED INVOIVE(S) ASSIG	VALS	RESULTS PER PAGE 10 ~	INVOICE NO. → APPROVER → STATE → SUPPLIER INVOICE SUPPLIER NAME → INVOICE DATE → AMOUNT → DUE DATE DATE →	1-00128 VIEW ASSIGNED SCIQUEST MRO INVOICE 25,495.00 USD SUPPLIER	1-00127 VIEW 5997 NOTASSIGNED 0717 SCIQUEST MRO INVOICE -153.00 USD APPROVE	NOT ASSIGNED	1-00124 VIEW NOTASSIGNED SCIQUEST MRO INVOICE 140.30 USD SUPPLIER	INVOICE	1-00121 VIEW NOTASSONED PERKIN LIFE INVOICE 719.00 USD	NOTASSIGNED 071499 FISHER SCIENTIFIC INVOICE 548.89 USD	1-00116 VIEW NOTASSINED 071498 FISHER SCIENTIFIC INVOICE 28.19 USD	PER PAGE 110 ▽	7
	5002	7660	5993			5994													2990

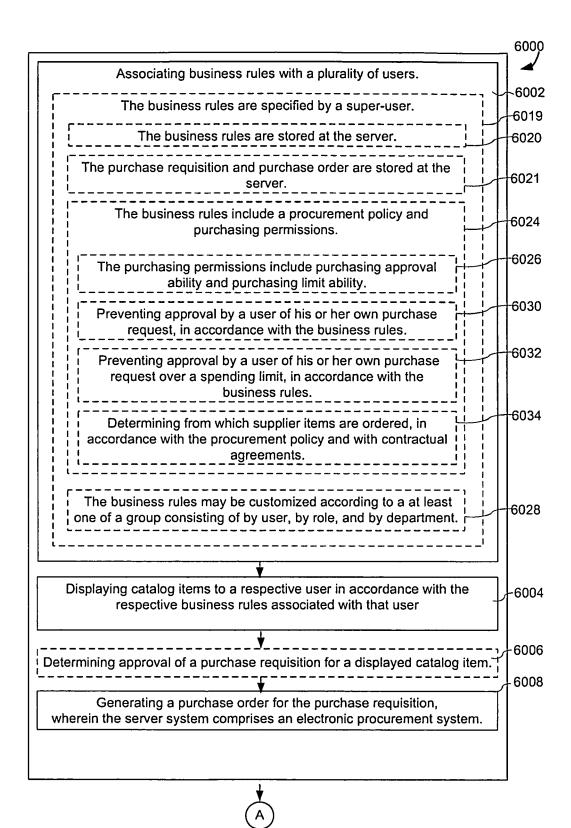
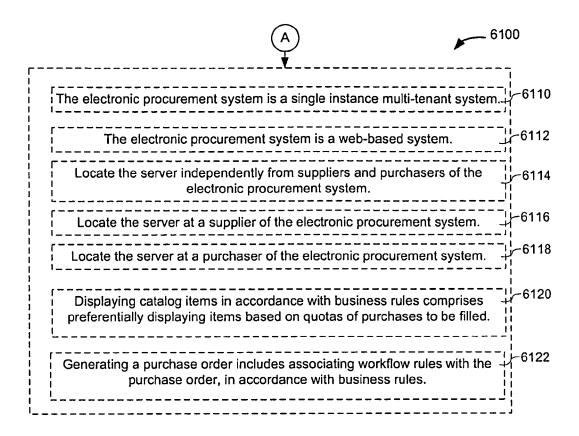
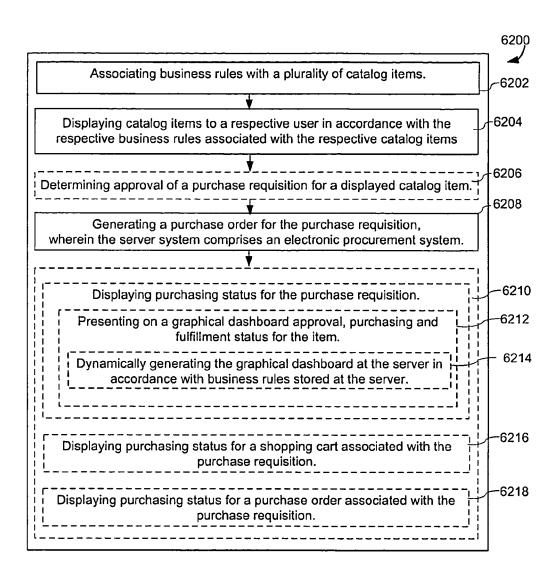


Figure 60





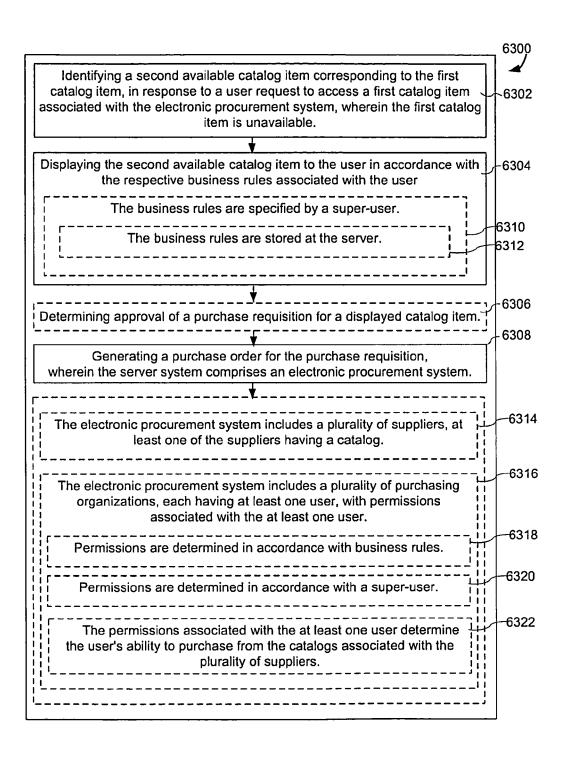


Figure 63

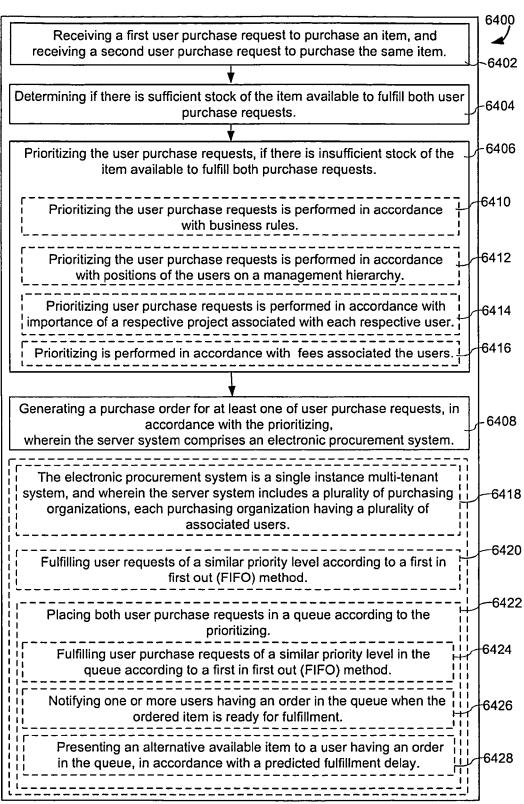
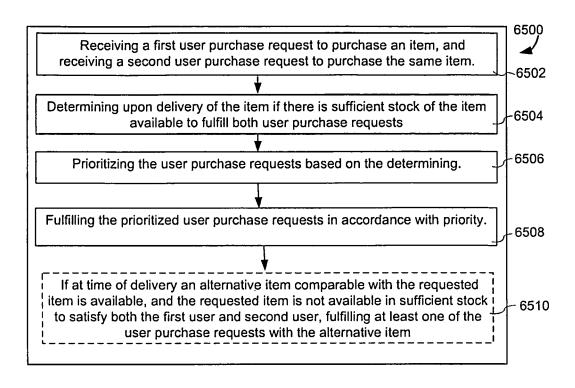
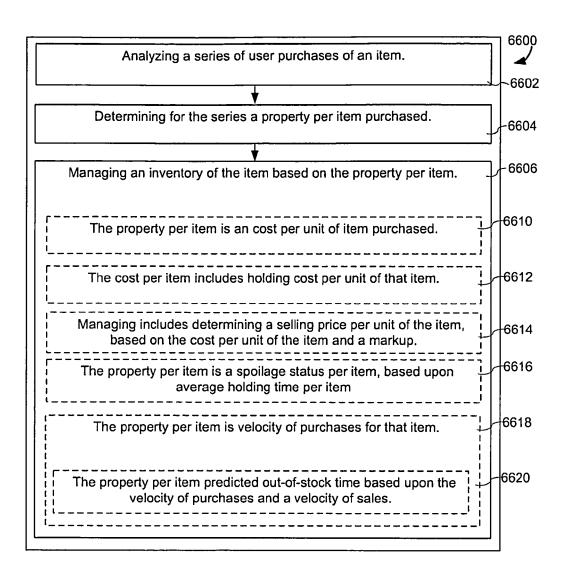
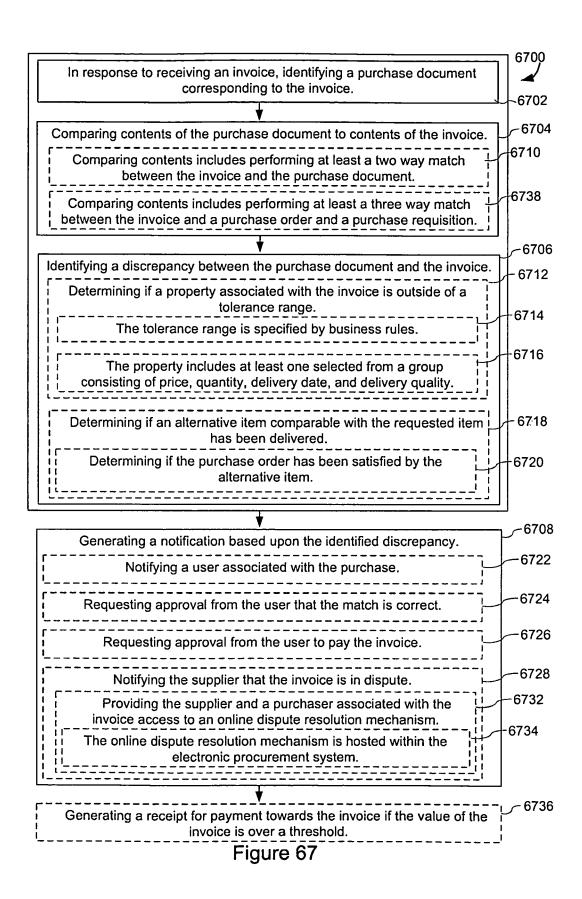
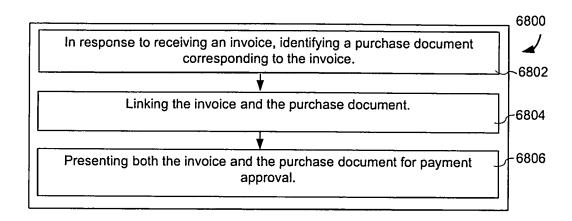


Figure 64









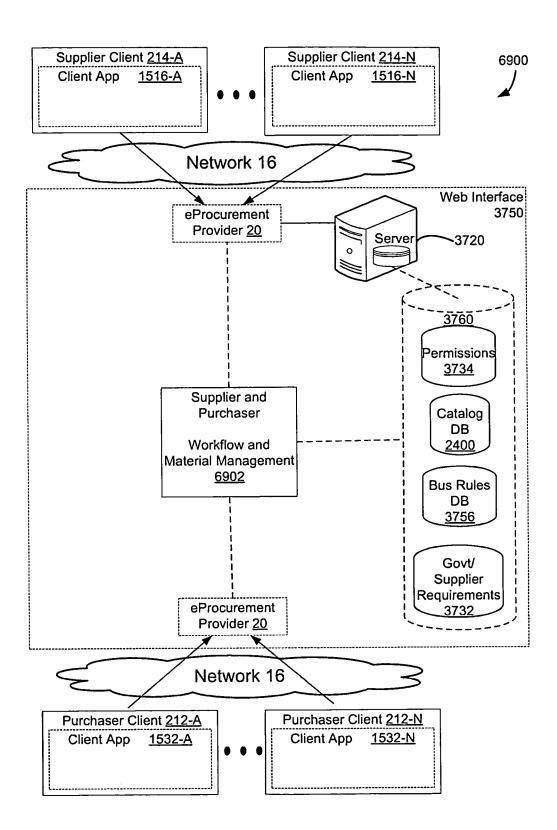


Figure 69

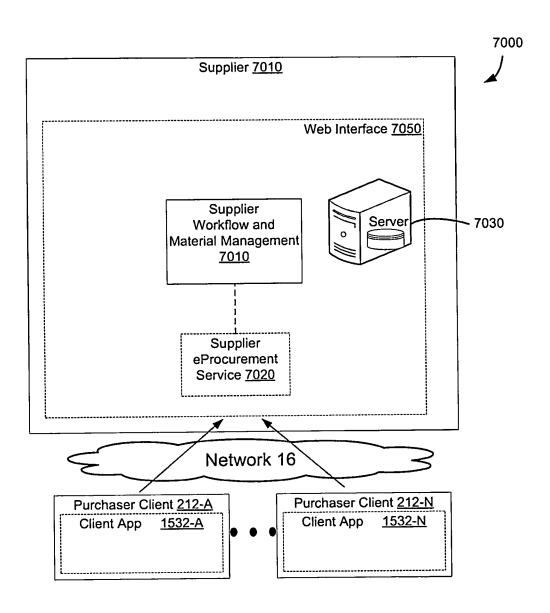


Figure 70

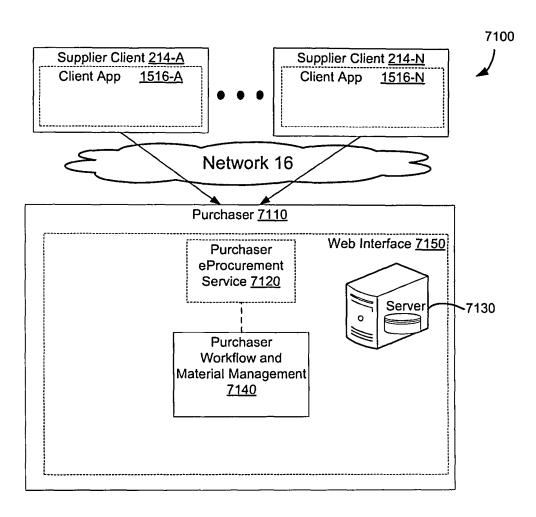


Figure 71

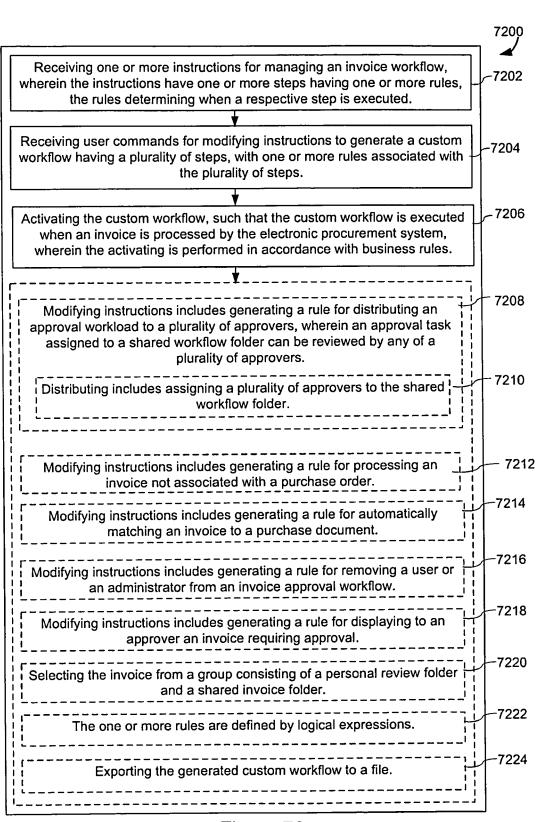
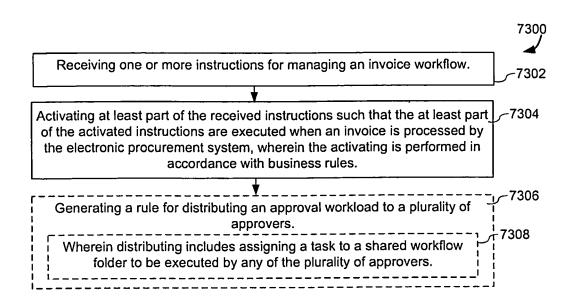


Figure 72



Jan. 26, 2016

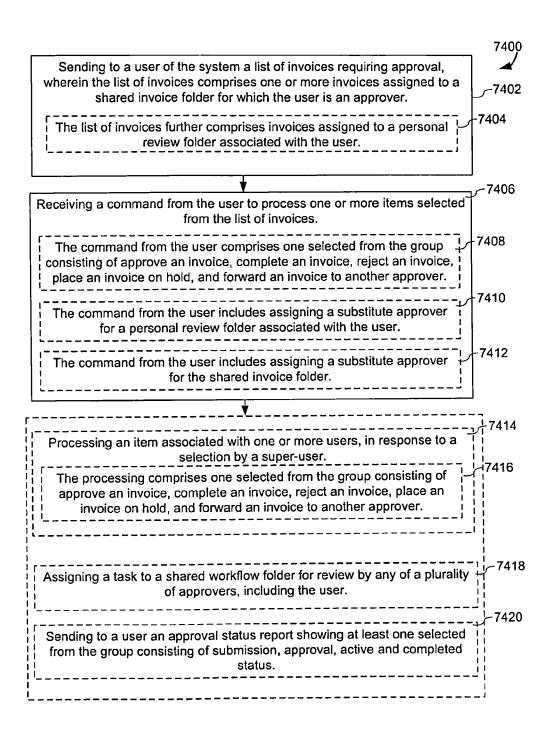
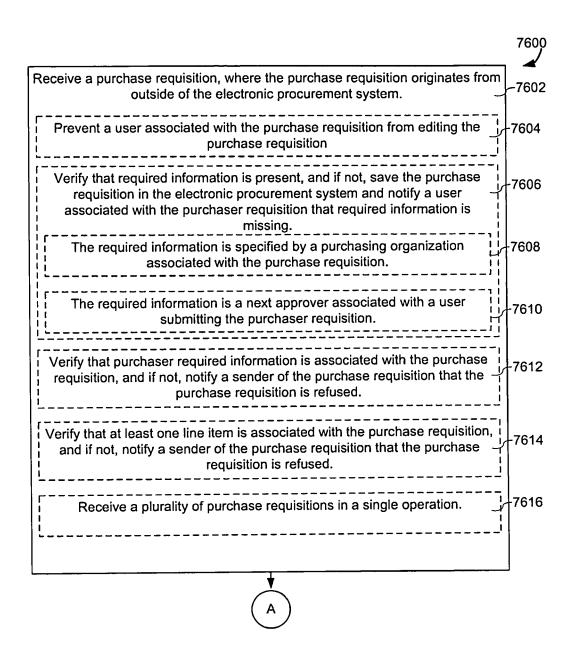


Figure 74

```
<?xml version="1.0" encoding="UTF-8"?>
         <!DOCTYPE WorkflowFolderMessage SYSTEM "https://</p>
         trinity.sciquest.com/app_docs/dtd/workflow/WorkflowFolder.dtd">
         <WorkflowFolderMessage>
          <Folder name="Remit To Validation" folderType="shared">
           <WorkflowType>invoice</WorkflowType>
          </Folder>
          <Folder name="Non-PO Approvals" folderType="shared">
7504
           <WorkflowType>invoice</WorkflowType>
          </Folder>
7506
          Folder name="Matching Exceptions" folderType="shared">
           <WorkflowType>invoice</WorkflowType>
          </Folder>
7508
          <Folder name="Matching Exception" folderType="shared">
           <WorkflowType>invoice</WorkflowType>
           </Folder>
7510~
           Folder name="Over Credits" folderType="shared">
           <WorkflowType>invoice</WorkflowType>
           </Folder>
           <Folder name="Auto-Matching" folderType="automated">
7512
           <WorkflowType>invoice</WorkflowType>
            <FolderRobotId>506</FolderRobotId>
           </Folder>
           Folder name="OK to Pay" folderType="automated">
            <WorkflowType>invoice</WorkflowType>
            <FolderRobotId>505</FolderRobotId>
           </Folder>
           <Folder name="Over Credit-Auto Reject" folderType="automated">
7516
            <WorkflowType>invoice</WorkflowType>
            <FolderRobotId>504</FolderRobotId>
           </Folder>
7518
           <Robot id="506"> AUTO MATCH
            <ProcessingTimeout>1800</ProcessingTimeout>
            <RetryInterval>300</RetryInterval>
            <RetryCount>0</RetryCount>
            <SocketTimeout>30</SocketTimeout>
           </Robot>
7520
           <Robot id="505"> OKAY TO PAY
            <ProcessingTimeout>1800</ProcessingTimeout>
            <RetryInterval>300</RetryInterval>
            <RetryCount>0</RetryCount>
            <SocketTimeout>30</SocketTimeout>
           </Robot>
           <Robot id="504"> OVER CREDIT/INVOICE PROCESS
 7522
            <ProcessingTimeout>1800</ProcessingTimeout>
            <RetryInterval>300</RetryInterval>
            <RetryCount>0</RetryCount>
            <SocketTimeout>30</SocketTimeout>
           </Robot>
          </WorkflowFolderMessage>
                                     Figure 75
```





Jan. 26, 2016

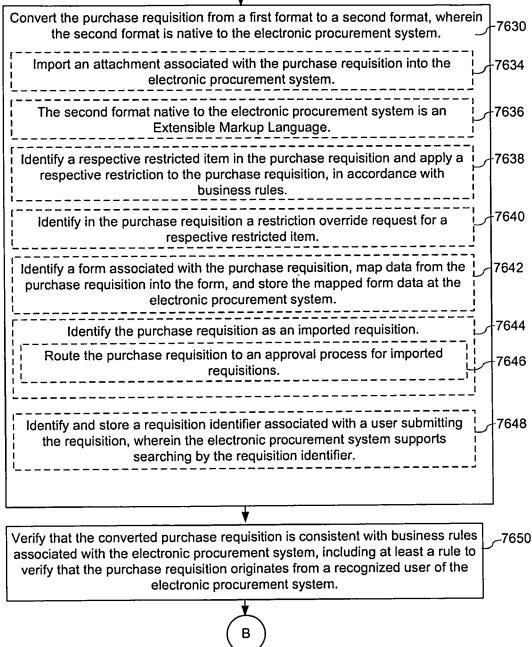
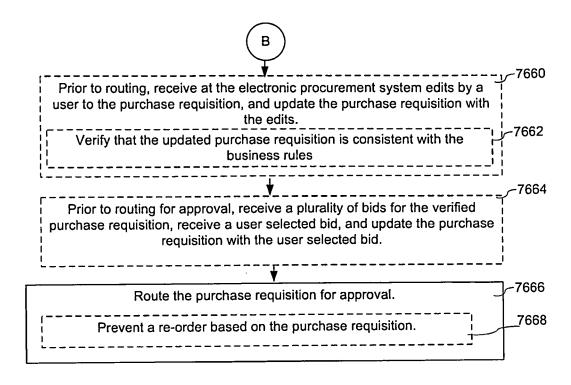
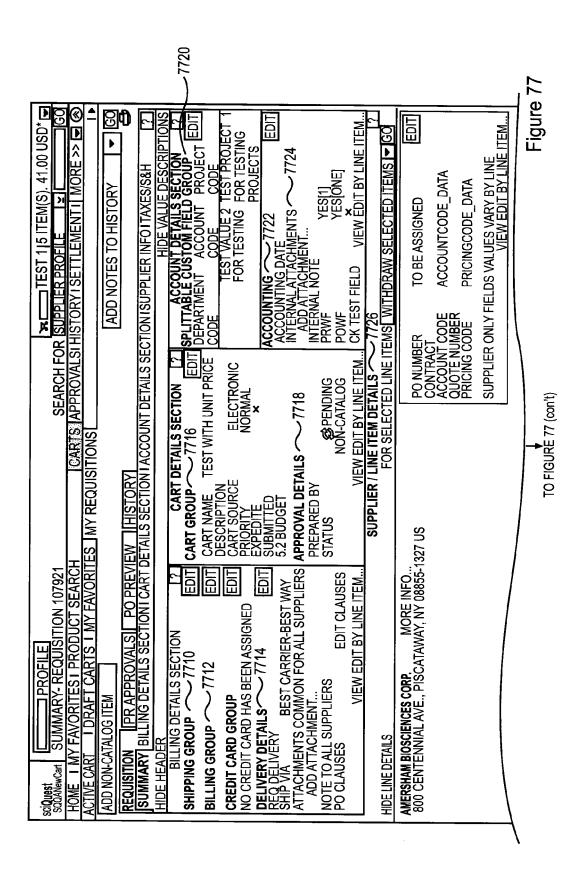


Figure 76B





		FROM FIGURE 77	E77				
ADD NON-CATALOG ITEM FOR THIS SUPPLIER.				1			
PRODUCT DESCRIPTION	CA	CATALOG NO SI	SIZE/PACKAGING UNIT PRICE	- 1	QUANTITY EXT.	EXT. PRICE	
1 ØTESTING LINE 2	Ç 7728 CAT∕ ≅	7728 CATALOGNUMBER_DATA~~7730		6.6789		333.95 USD 🔲	EDIT
VIEWIEDIT I COPY TO OTHEK LINES MANUFACTURER NAME NAME DATA CAPITAL EXPENSE	EXPENSE <		INTERNAL NOTE		1132		
MANUFACTURER CATALOGNUMBER_DATA TAXABLE	×		INTERNAL ATTACHMENTS				
12-34-56-00	COMMODITY CODE TOOLS REPLENISH STOCK X		ADD ATTACHMENT EXTERNAL NOTE	Ę			
POCLAUS	SES	EDIT CLAUSE	S ADD ATTACHMENT	LIEK			
2 STING COST MORE INFO		CATALOGNIMBER DATA	FACH	TEST 6 6789	50 FA 333	333 95 USD	FINE
FIELDS			1/EA	3]]
MANUFACTURER NAME MANUFACTURER NAME MANUFACTURER CATALONIIINDED DATA TAVADIE	x <		INTERNAL NOTE				
	יוסטד דמסט אדו		ADD ATTACHMENT				<u></u>
MORE INFO 12-34-36-00 COMMULI REPLENISH	REPLENISH STOCK X		EXTERNAL NOTE	Í			
PHSAUSI	SES	EDIT CLAUSES		퓠			
SUPP CF	×		INT CF	TEST			
				SUPPLI TAX1	SUPPLIER SUBTOTAL	067.90 0.00	
				TAX2		000	
				HANDE BENEFIT	SHIPPING HANDLING SLIPPI IER TOTAL	0.00 0.00 667 90 HSD	
SHIPPING, HANDLING, AND TAX CHARGES ARE CALCULATED AND CHARGED BY EACH SUPPLIER. THE VALUES SHOWN HERE ARE	ED AND CHARGE	BY EACH SUPPLIER. THE V	ALUES SHOWN HERE ARE	SUBTO	AL	667.90	
FOR ESTIMATION PURPOSES, BODGET CHECKING, AND WO	VOKKI-LOW APPR	JVALS.		1 <u>5</u> 25			
				SHIPPING	<u> </u>	86 66	
				TOTAL		667.90 U	C C
		i		SEE CONF	SEE CONFIGURATION FOR THIS REQUISITION	THIS REQUI	NOILI
		Figure //				NEW (CARTS
		(con't)					

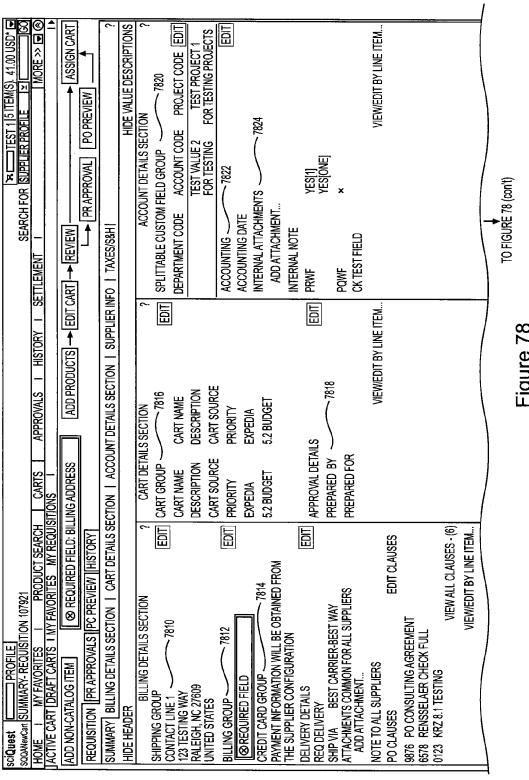
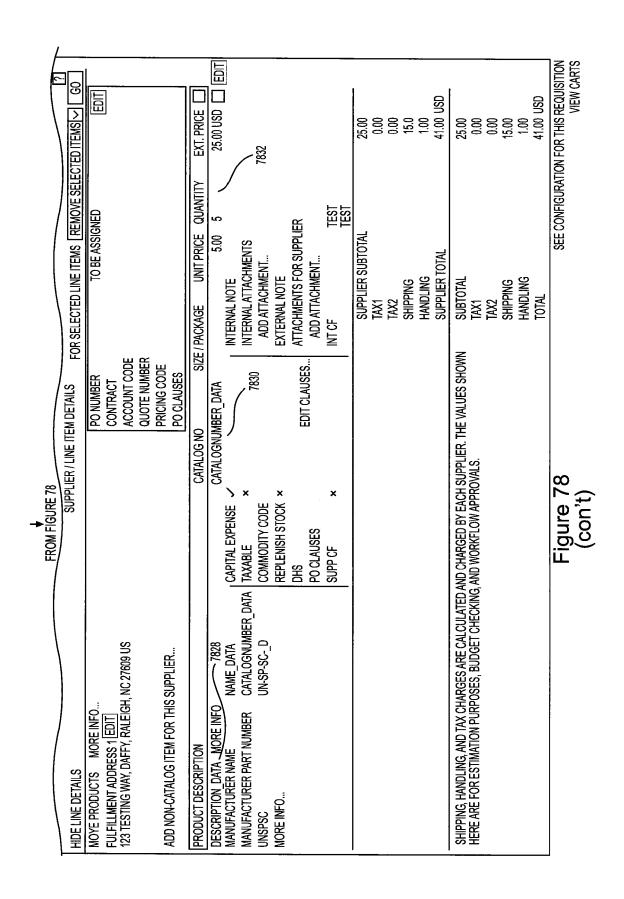


Figure 78



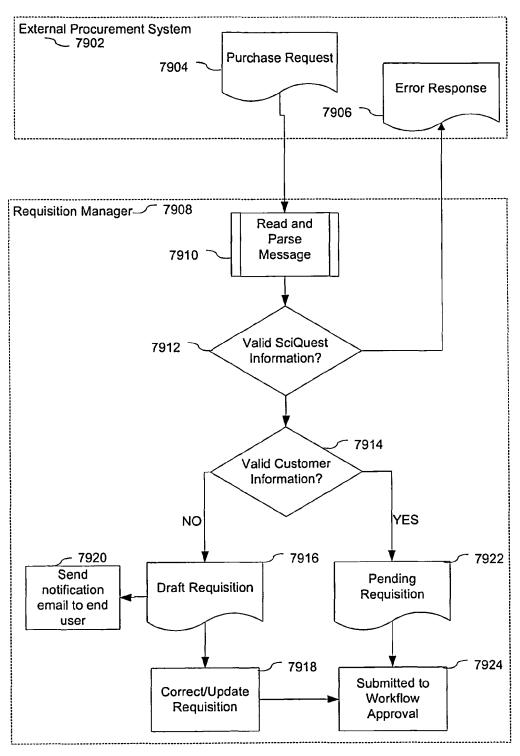
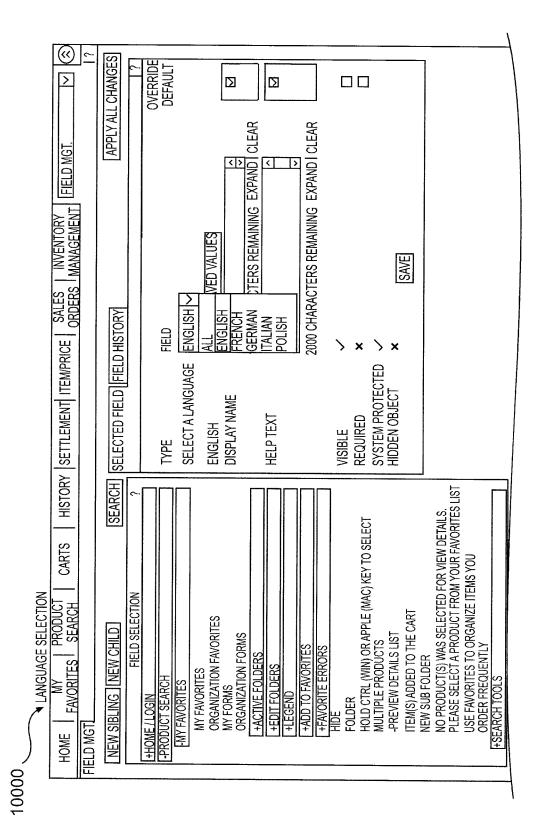
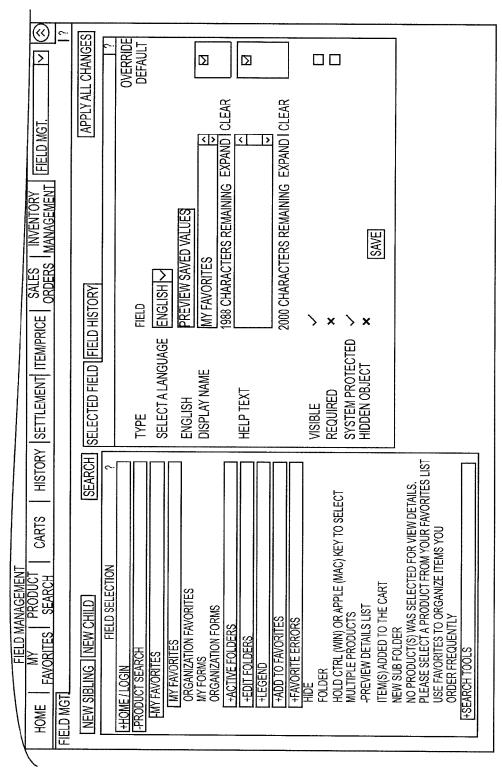


Figure 79



F/G. 88



F/G. 80 (CONT'D)

ACTIVE FOLDERS (CLUERS)				
[UNCHECK ALL]			DETAILS]]	LEGEND CEGEND CEGND CEG
FOLDER NAME/ PRODUCT NICKNAME	SUPPLIER	CATALOG NO.	g	QTY. PRICE ESTIMATE SELECT
23- MY FAVORITES ADD NON-CATALOG ITEM				
2-FLUORO-3-(TRIFLUOROMETHYL) BENZYL ALCOHOL, 96%, 0.25g LANCASTER SYNTHESIS	LANCASTER SYNTHESIS	12306-0.25g	4-	030 08.9
AA CONTRACT TEST-BUFFER ASI, LYSIS BUFFER FOR USE WITH QIAAMP DNA STOOL MINI KIT (CAT NO. 51504), 560 mL	QIAGEN, INC.	19082	UNAVAILABLE	
AA CONTRACT TEST-CONTRACTED PRODUCT 🖹	VWR SCIENTIFIC PRODUCTS	3384-0448	2	450.00 USD
AA CONTRACT TEST- SECOND CONTRACTED ITEM 🖺	VWR SCIENTIFIC PRODUCTS	CONTRACT-2		OSO 00:000;1
AIRPORE TAPE SHEETS, MICROPOROUS TAPE SHEETS FOR COVERING96-WELL BLOCKS: 25 SHEETS PER PACK, AIRPORE MICROPOROUS TAPE SHEETS ARE IDEAL FOR BACTERIAL CULTIVATION IN BLOCKS, AS THEY PROMOTE GAS EXCHANGE DURING CULTURING	FISHER SCIENTIFIC	NC9942890 CHECK AVAILABILITY		37.00 USD
	FAVORITE DESCRIPTION WHEN INITIALLY ADDED TO FAVORITES BY	, B-1073 1mg	UNAVAILABLE	
BOTTLE, DROP-DISPENSING, TEF30ML + O-		16354-320		37.99 USD
BUFFER ASI, LYSIS BUFFER FOR USE WITH QIAAMP DNA STOOL MINI KIT (CAT NO. 51504), 560 mL	INDUSTRIES	19082	1	8.88 EUR
CAD- HISPEED PLASMID MAXI KIT (25), FOR ULTRAFAST PURIFICATION OF UP TO 750µg PLASMID OR COSMID DNA	Industries			13.45 USD
HISPEED PLASMID MAXI KIT (25), FOR ULTRAFAST PURIFICATIONOF UP TO 75040 PLASMID OR COSMID DNA	INDUSTRIES	Ę.		13.45 USD

F/G. g

	<u> </u>	T	1								4
	SALES INVENTORY MORE>> SALES MANAGEMENT MORE>>	: SEARCH	CREATE NEW ITEM	END THE CELECTED ITEM MADICAS DISCONTINITION & COLOR	TO IL LIM IMPANY AS DISCOINTINGED V 160	MARK FOR DELETION MARK AS DISCONTINITED 7	MFG MFG SYNDICATE CT	ME CAI REACTIVATE	EA 560mL	Program	
	SALES II	N ATTRIBUTE		THE CELECT			MITH M	EDITS NA			
		DATA ITEMS PRICE SETS EXTRACTS CONFIGURATION ATTRIBUTE SEARCH		EOD	Ś	OUR SEARCH: 1	PRODUCT DESCRIPTION		BUFFER ASL, LYSIS BUFFER FOR	JSE WITH QIAAMP DNA STOOL	MINI KIT (CAT NO. 51504). 560mL
	CARTS HISTORY SETTLEMENT ITEM/PRICE	E SETS EXTRAC	į.			RESULTS FOUND FOR YOUR SEARCH: 1	PRODUCT		BUFFER ASL, LN	USE WITH QIAA	MINI KIT (CAT N
	HISTORY	ITEMS PRIC				RESUL	ATALOG	4	19082		
		BMIT DATA		rASI.			RODUCT C	JNSPSC			
CONTINUED	PRODUCT SEARCH	DASHBOARD SEARCH SUBMISSIONS SUBMIT	TER SEARCH	RESULTS FOR: INDUSTRIES +BUFFER +ASL		<u>∑</u>	WEIGHT SUPPLIER CATEGORY PRODUCT CATALOG) 	BUFFERS		
PRODUCT DISCONTINUED	MY FAVORITES	D SEARCH SU	+ CLICK FOR ITEM MASTER SEARCH	FOR: INDUST	SHOW ITEM DETAILS	RESULTS PER PAGE 30	SUPPLIER	٥	100 INDUSTRIES BUFFERS		
$\setminus \setminus$	HOME	DASHBOAR	+ CLICK F	RESULTS	SHOW ITE	RESULTS	WEIGHT	>	100		

F/G. " (CONT'D-1)

		. W.W.											\supset
	E CART	SELECT							-				
	LEGEND TO DETAILS ADD TO ACTIVE CART	ESTIMATE S		9.99 USD		450.00 USD	1,000.00 USD	37.00 USD		37.99 USD		13.45 USD	13.45 USD
	DETAILS	NO. QTY. PRICE ESTIMATE			UNAVAILABLE	2			UNAVAILABLE		UNAVAILABLE		
		CATALOG NO.		12306-0.25g	19082	3384-0448	CONTRACT-2	NC9942890 CHECK AVAILABILITY	B-1073 1mg	16354-320	19082		111
	A THE PROPERTY OF THE PROPERTY	SUPPLIER		LANCASTER SYNTHESIS	QIAGEN, INC.	WWR SCIENTIFIC PRODUCTS	VWR SCIENTIFIC PRODUCTS	FISHER SCIENTIFIC	A.G. SCIENTIFIC	VWR INTERNATIONAL	Industries	Industries	INDUSTRIES
ACTIVE FOLDERS EDIT FOLDERS UPDATED FAVORITES	[UNCHECK ALL]	FOLDER NAME/ PRODUCT NICKNAME	E> MY FAVORITES ADD NON-CATALOG ITEM	2-FLUORO-3-(TRIFLUOROMETHYL) BENZYLALCOHOL, 96%, 0.25g LANCASTER SYNTHESIS	AA CONTRACT TEST-BUFFER ASL, LYSIS BUFFER FOR USE WITH QIAGEN, INC. QIAAMP DNA STOOL MINI KIT (CAT NO. 51504), 560 mL	AA CONTRACT TEST-CONTRACTED PRODUCT 自	AA CONTRACT TEST- SECOND CONTRACTED ITEM 🖹	AIRPORE TAPE SHEETS, MICROPOROUS TAPE SHEETS FOR COVERING96-WELL BLOCKS: 25 SHEETS PER PACK, AIRPORE MICROPOROUS TAPE SHEETS ARE IDEAL FOR BACTERIAL CULTIVATION IN BLOCKS, AS THEY PROMOTE GAS EXCHANGE DURING CULTURING	BENZYLQUISQUALIC ACID	BOTTLE, DROP-DISPENSING, TEF30ML ←	BUFFER ASI, LYSIS BUFFER FOR USE WITH QIAAMP DNA STOOL MINI KIT (CAT NO. 51504), 560 mL	CAD- HISPEED PLASMID MAXI KIT (25), FOR ULTRAFAST PURIFICATION OF UP TO 750µg PLASMID OR COSMID DNA	HISPEED PLASMID MAXI KIT (25), FOR ULTRAFAST PURIFICATIONOF UP TO 750µg PLASMID OR COSMID DNA

F/G. 81 (CONT'D-2)

	SALES INVENTORY MORE>> SALES ORDERS IMANAGEMENT	► [PLACE ORDER] OR [ASSIGN CART]	ROVALS PO REVIEW	-	:S/S&H	HIDE VALUE DESCRIPTIONS	2 SUPPLIER INFO	IT SUPPLIER INFO	NOTE TO ALL SUPPLIERS		ADD ALIACHIMEN I	2 DELIVERY 7	DELIVERY EXPEDITE	SHIP VIA BEST CARRIER-BEST WAY REQ DELIVERY 5/30	VIEW/EDIT BY LINE ITEM
	TTLEMENT ITEM/PRICE	◆ EDIT CART → REVI	FRAPROVALS	V HISTORY	SUMMARY GENERAL SHIP TO IBILL TO I DELIVERY CODES SUPPLIER INFO TAXES/S&H		INTERNAL INFO	INTERNAL INFO YES PRWF	INTERNAL NOTE	INTERNAL ATTACHMENTS HEADER LEVEL ATTACHMENTS		BILL TO	EDIT BILL TO EDIT USER:	ACCOUNTS PAYABLE MORRISVILLE, NC 27560 UNITED STATES	CREDIT CARD VIEW/EDIT BY LINE ITEM
10200	HOME MY PRODUCT CARTS HISTORY SE ACTIVE CART DRAFT CARTS MY FAVORITES MY REQUISITIONS	CREATE CART	ADD NON-CATALOG ITEM	REQUISITION PRAPPROVALS PO PREVIEW	SUMMARY GENERAL SHIP TO BILL TO	HIDE HEADER	GENERAL	CART NAME NORMAL NORMAL	DESCRIPTION PREPARED BY	PREPARED FOR	VIEW/EDIT BY LINE ITEM	SHIP TO	T FICER	1111 MAIN STREET RADIOACTIVE DELIVERY DOCK MORRISVILLE, NC 27560	VIEW/EDIT BY LINE ITEM

F/G. 82

ETAILS ADD TO FAVORITES GO GO GO	CONTRACT PO NUMBER TO BE ASSIGNED BASED ON THE SUPPLIER SETTINGS (BLANKET PO) QUOTE #1 PO CLAUSES VIEW/EDIT BY LINE ITEM	CATALOG NO SIZE/PACKAGING UNIT PRICE QUANTITY EXT. PRICE [12306-0.25g EA 9.99 1 EA 9.99 USD CIEDIII SUPPLIER SPECIFIC EXTERNAL NOTE ATTACHMENTS FOR SUPPLIER ADD ATTACHMENT X MISCELLANEOUS X SUPPLIER SUBTOTAL 9.99 TAX 1 1.00 TAX 2 0.50 SHIPPING 20.00 HANDLING 30.00 SUPPLIER TOTAL 61.49 USD
SUPPLIER / LINE ITEM DETAILS FOR SE	LANDCASTER SYNTHESIS 3 MORE INFO ADD NON-CATALOG ITEM FOR THIS SUPPLIER	PRODUCT DESCRIPTION CATA	1 2-FLUORO-3-(TRIFLUOROMETHYL) BENZYL ALCOHOL, 96%, 0.25g MORE INFO 12306-0.25g SUPPLIER SF ATTACHMI MOLECULAR FORMULA C ₈ H ₆ F ₄ 0 CAPTIAL EXPENSE MISCELLANE MORE INFO TAXABLE X COMMODITY CODE MISCELLANE X REPLENISH STOCK X

F/G. "2 (CONT'D)

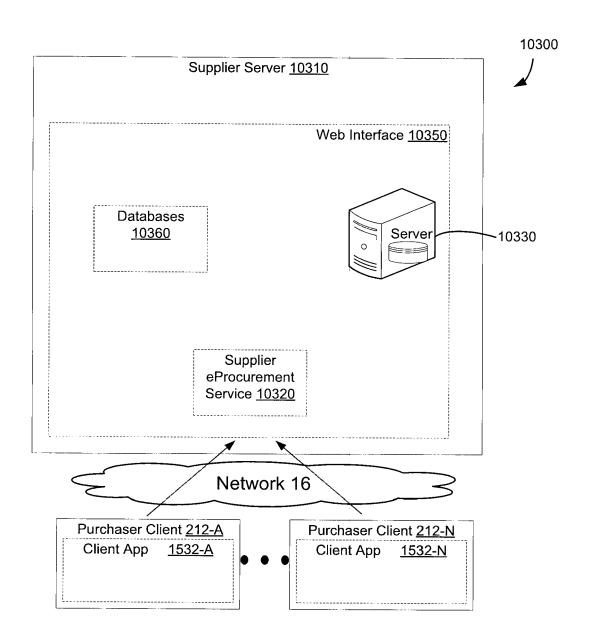


Figure 83

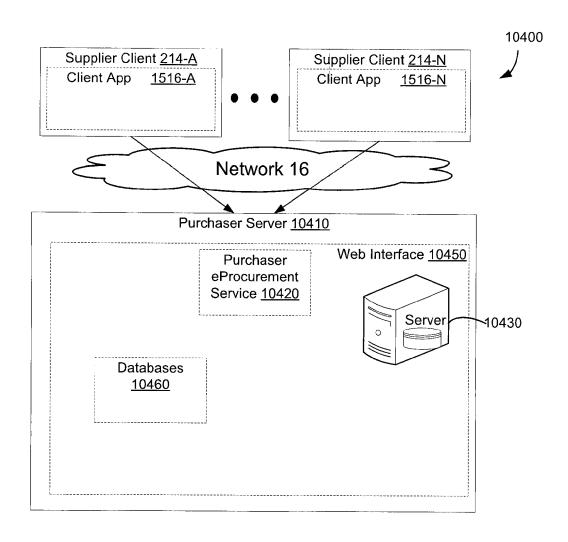


Figure 84

METHOD, MEDIUM, AND SYSTEM FOR PURCHASE REQUISITION IMPORTATION

RELATED APPLICATIONS

This application is a continuation-in-part of U.S. patent application Ser. No. 12/283,274, "Workflow and Material Management in an Electronic Procurement System" filed on Sep. 9, 2008, which is hereby incorporated entirely herein by reference.

This application claims the benefit and priority of U.S. Provisional Patent Application Ser. No. 61/130,028, filed on May 27, 2008, which is hereby incorporated entirely herein by reference.

This application is related to U.S. patent application Ser. No. 10/318,814, filed Dec. 13, 2002, now U.S. Pat. No. 6,944, 613 entitled "Method and System for Creating a Database and Searching the Database for Allowing Multiple Customized Views, issued on Sep. 13, 2005, which is hereby incorporated 20 entirely herein by reference.

This application is related to U.S. patent application Ser. No. 12/283,276, "Taxonomy and Data Structure for an Electronic Procurement System" filed on the same date as this application, which is hereby incorporated entirely herein by 25 reference.

This application is related to U.S. patent application Ser. No. 12/283,275, "Shopping Cart Management in an Electronic Procurement System" filed on the same date as this application, which is hereby incorporated entirely herein by 30 reference.

This application is related to U.S. patent application Ser. No. 12/283,279, "Multi-Currency Normalization In An Electronic Procurement System" filed on the same date as this application, which is hereby incorporated entirely herein by 35 reference.

This application is related to U.S. patent application Ser. No. 12/283,280, "Form Management In An Electronic Procurement System" filed on the same date as this application, which is hereby incorporated entirely herein by reference.

This application is related to U.S. patent application Ser. No. 12/283,277, "Identifying and Resolving Discrepancies Between Purchase Documents and Invoices" filed on the same date as this application, which is hereby incorporated entirely herein by reference.

This application is related to U.S. patent application Ser. No. 12/283,278, "Providing Substitute Items When An Ordered Item Is Unavailable" filed on the same date as this application, which is hereby incorporated entirely herein by reference.

This application is related to U.S. patent application Ser. No. 12/283,281, "Prioritizing Order And Receipt Of Items Between Users" filed on the same date as this application, which is hereby incorporated entirely herein by reference.

This application is related to U.S. patent application Ser. 55 No. 12/283,282, "Invoice Workflow" filed on Sep. 9, 2008, which is hereby incorporated entirely herein by reference.

This application is related to U.S. Provisional patent application Ser. No. 12/286,508, "Multi-Constituent Attribution of a Vendor's Product Catalog" filed on the same date as this application, which is hereby incorporated entirely herein by reference.

This application is related to U.S. Provisional patent application Ser. No. 12/286,506, "SKU Based Contract Management in an Electronic Procurement System" filed on the same 65 date as this application, which is hereby incorporated entirely herein by reference.

2

FIELD OF INVENTION

The present invention relates generally to the field of procurement and, in particular, to a system and method for customized searching, procurement, data modeling, and order processing over a network using a single instance system that supports multi-tenants in a multi-business to multi-consumer type environment.

BACKGROUND OF INVENTION

Current e-commerce systems and methods provide consumers and businesses with the ability to browse product lines and consummate sales transactions. However, current e-commerce systems do not allow for easy customization of the needed functionality to facilitate the transaction. While current systems can be customized for a specific business or customer, the customization is a time consuming and complicated task. These customizations must generally be hard coded into the application by the developers, thereby incurring increases in costs, delay in implementation, and loss of productivity. In the field of procurement, for example, an organization in need of a product or service generally has contractual relationships with multiple vendors to provide the desired product or service. The contractual relationship may define such terms as price, lot size, form of delivery, amount of discount, and other business rules. These rules may become complex as one term may influence other terms, such as different levels of discounts based on the number of items ordered.

Procurement systems also generally require order authorization from a procurement officer of the organization or someone in charge of reviewing the orders for compliance with internal policies of the organization, in addition to the contractual relationships with the vendors. These orders must be processed and tracked as the orders progress through the approval process such that the individuals placing orders are notified of whether the order was approved or denied, as well as for internal audit purposes. Therefore, there is a need for a system and method that can provide an efficient and simple procurement process that is easily customizable for multiple organizations and multiple vendors with simple and complex business terms, and can also provide a single point-of-access for both businesses and consumers to interface, interact, and implement and execute transactions, in accordance with existing or newly defined relationships, using a custom and configurable methodology for realizing their requirements.

SUMMARY OF THE INVENTION

Accordingly, the present invention is directed to a procurement system and method over a network using a single instance multi-tenant architecture that substantially obviates one or more problems due to limitations and disadvantages of the related art.

A server system and associated method and computer readable storage medium for an electronic procurement system is described, wherein the electronic procurement system supports importing of purchase requisitions. In response to one or more user commands to the electronic procurement system, the server receives a purchase requisition, where the purchase requisition originates from outside of the electronic procurement system. The purchase requisition is converted from a first format to a second format, wherein the second format is native to the electronic procurement system. The server verifies that the converted purchase requisition is consistent with business rules associated with the electronic procurement

system. The business rules include at least a rule to verify that the purchase requisition originates from a recognized user of the electronic procurement system. The purchase requisition is then routed for approval.

In some embodiments, edits by a user are received at the 5 electronic procurement system and the purchase requisition is updated with the edits. In some embodiments, the server verifies that the updated purchase requisition is consistent with the business rules. In some embodiments, a user associated with the purchaser requisition is prevented from editing the purchase requisition after it has been received by the server hosting the electronic procurement system.

In some embodiments, after receiving the purchase requisition, the server verifies that required information is present, 15 and if not, saves the purchase requisition in the electronic procurement system and notifies a user associated with the purchaser requisition that the required information is missing. In some embodiments, the required information is specichase requisition. In some embodiments, the required information is a next approver associated with a user submitting the purchaser requisition. In some embodiments, after receiving the purchase requisition, the server verifies that a purchaser required information is associated with the pur- 25 chase requisition, and if not, notifies a sender of the purchase requisition that the purchase requisition is refused.

In some embodiments, after receiving the purchase requisition, the server verifies that a user identifier and at least one line item are associated with the purchase requisition, and if 30 not, notifies a sender of the purchase requisition that the purchase requisition is refused. In some embodiments, converting the purchase requisition includes importing an attachment associated with the purchase requisition into the electronic procurement system. In some embodiments, the 35 second format native to the electronic procurement system is an Extensible Markup Language.

In some embodiments, converting the purchase requisition includes identifying a respective restricted item in the purchase requisition and applying a respective restriction to the 40 purchase requisition, in accordance with business rules. In some embodiments, a restriction override request is identified in the purchase requisition for a respective restricted item. In some embodiments, a form associated with the purchase requisition is identified and data is mapped from the purchase 45 requisition into the form, and the mapped form data is stored at the electronic procurement system. In some embodiments, a plurality of purchase requisitions is imported in a single operation. In some embodiments, a user or purchaser is prevented from re-ordering an item based on a purchase requi- 50 sition (i.e., no refills of the purchase requisition) so that a separate purchase requisition must be submitted for each

In some embodiments, the purchase requisition is identified as an imported requisition. In some embodiments, the 55 dance with the present invention; purchase requisition is routed to an approval process for imported requisitions, separate from a process for requisitions non-imported requisitions. Non-imported requisitions includes requisitions originating from within the electronic procurement system. In some embodiments, a requisition 60 identifier associated with a user submitting a purchase requisition is identified and stored at the electronic procurement system, and the requisition identifier may be used to search the electronic procurement system by the requisition identifier. In some embodiments, a plurality of bids are received for the verified purchase requisition, a user bid is received, selected from the plurality of bids, and the purchase requisi-

tion is updated with the user selected bid, prior to routing the purchase requisition for approval.

Additional features and advantages of the invention will be set forth in the description which follows, and in part will be apparent from the description, or may be learned by practice of the invention. The objectives and other advantages of the invention will be realized and attained by the structure particularly pointed out in the written description and claims hereof as well as the appended drawings.

It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are included to provide a further understanding of the invention and are incorfied by a purchasing organization associated with the pur- 20 porated in and constitute a part of the specification, illustrate embodiments of the invention and together with the description serve to explain the principles of the invention. In the drawings:

> FIG. 1 is a block diagram illustrating an exemplary embodiment of an eProcurement system in accordance with the present invention;

> FIG. 2 illustrates an exemplary embodiment of an eProcurement architecture in accordance with the present invention;

> FIG. 3 illustrates an exemplary user interface in accordance with the present invention.

> FIGS. 4A-4T illustrate exemplary user management tools in accordance with the present invention;

> FIG. 5A illustrates an exemplary user setting tool in accordance with the present invention;

> FIG. 5B illustrates an exemplary roles selection tool in accordance with the present invention;

> FIG. 5C illustrates an exemplary email preference tool in accordance with the present invention;

> FIG. 5D illustrates an exemplary navigation setup tool in accordance with the present invention;

> FIG. 5E illustrates an exemplary user purchasing tool in accordance with the present invention;

FIG. 5F illustrates an exemplary punch-out access tool in accordance with the present invention;

FIGS. 5G-5M illustrate exemplary user permission tools in accordance with the present invention:

FIGS. 5N-5O illustrate exemplary materials management tools in accordance with the present invention;

FIGS. 6A-6J illustrate exemplary organization setup tools in accordance with the present invention;

FIG. 7 illustrates an exemplary workflow setup tool in accordance with the present invention;

FIGS. 8A-8D illustrate exemplary search engines in accor-

FIGS. 9A-9F illustrate exemplary catalog management tools in accordance with the present invention;

FIG. 10 illustrates an exemplary contracts management tool in accordance with the present invention;

FIGS. 11A-D illustrates an exemplary cart and requisition tool in accordance with the present invention;

FIG. 12 illustrates an exemplary workflow setup tool in accordance with the present invention;

FIG. 13 illustrates an exemplary purchase order approval tool in accordance with the present invention; and

FIG. 14 illustrates an exemplary history tool in accordance with the present invention.

- FIG. 15 illustrates the electronic procurement system communicating over a network with suppliers and purchasing organizations.
- FIG. 16 illustrates the purchasing organization client communicating over a network with the purchaser server application to access the engines of the purchaser server applica-
- FIG. 17 illustrates the supplier client communicating over a network with the supplier server application to access the engines of the supplier server application.
- FIG. 18 illustrates the features and database accessible via the supplier client.
- FIG. 19 illustrates the features and database accessible via the purchasing organization client.
- FIG. 20 illustrates a server system hosting an electronic procurement system running on the server.
- FIG. 21 illustrates a client system providing access to an electronic procurement system running on a server.
- FIG. 22 illustrates a top-level data structure for electronic 20 procurement system.
- FIG. 23 illustrates a data structure for a master database, showing contents of a forms database.
- FIG. 24 illustrates a data structure for a master database, showing contents of a catalog database and search database 25 for indexing the master database.
- FIG. 25 illustrates a data structure for a transaction database, showing contents of a purchase order database.
- FIG. 26 illustrates a data structure for a transaction database, showing contents of a fax, distribution and revisions 30 databases.
- FIG. 27 illustrates a data structure for a transaction database, showing contents of a requisition database.
- base, showing contents of a receipt database.
- FIG. 29 illustrates a data structure for a transaction database, showing contents of a sales order database.
- FIG. 30 illustrates a data structure for a transaction database, showing contents of a workflow database.
- FIG. 31 illustrates a data structure for a staging database. showing contents of a staging catalog database.
- FIG. 32 illustrates a data structure for a transaction database, showing contents of a contracts database.
- FIG. 33 illustrates a data structure for a transaction data- 45 base, showing contents of a buyer invoice database.
- FIG. 34 illustrates a data structure for a transaction database, showing contents of a seller invoice database.
- FIG. 35 illustrates a data structure for an end user database, showing contents of a user/security database.
- FIG. 36 illustrates a data structure for a scheduler database, showing contents of the scheduler database.
- FIG. 37 illustrates a prophetic block diagram of a server system, according to some embodiments.
- system, according to some embodiments.
- FIG. 39 illustrates a prophetic block diagram of a process flow implemented at a server system, according to some embodiments.
- FIG. 40 illustrates a prophetic block diagram of an e-procurement process flow implemented at a server system, according to some embodiments.
- FIG. 41 illustrates an exemplary data structure 4100 for an inventory of an item, according to some embodiments.
- FIG. 42 illustrates a prophetic block diagram of a process 65 flow, implemented at a server system, according to some embodiments.

- FIG. 43 illustrates an exemplary screenshot of a workflow configuration user interface, according to some embodi-
- FIG. 44 illustrates an exemplary screenshot of an advanced dynamic workflow setup rule group menu, according to some embodiments.
- FIG. 45 illustrates an exemplary screenshot of a rules management setup menu, according to some embodiments.
- FIG. 46 illustrates an exemplary screenshot of an assign rule to group menu, according to some embodiments.
- FIG. 47 illustrates an exemplary screenshot of an import/ export rules group menu, according to some embodiments.
- FIG. 48 illustrates an exemplary screenshot of an item setup menu within a supplies manager application, according 15 to some embodiments.
 - FIG. 49A illustrates an exemplary screenshot of a setup inventory attributes menu, according to some embodiments.
 - FIG. 49B illustrates an exemplary screenshot of an item setup pricing menu, according to some embodiments.
 - FIG. 49C illustrates an exemplary screenshot of an item setup replenishment link menu, according to some embodi-
 - FIG. 50 illustrates an exemplary screenshot of a supplier setup inventory parameters menu, according to some embodi-
 - FIG. 51 illustrates an exemplary screenshot of a search results menu, according to some embodiments.
 - FIG. 52 illustrates an exemplary screenshot of a shopping cart menu, according to some embodiments.
 - FIG. 53 illustrates an exemplary screenshot of a sales order queue, according to some embodiments.
 - FIG. 54 illustrates an exemplary screenshot of a picking/ packing slip, according to some embodiments.
- FIG. 55 illustrates an exemplary screenshot of a purchase FIG. 28 illustrates a data structure for a transaction data-
 - FIG. 56 illustrates an exemplary screenshot of a replenishment report, according to some embodiments.
 - FIG. 57 illustrates an exemplary screenshot of a replenish-40 ment order, according to some embodiments.
 - FIG. 58A illustrates an exemplary screenshot of a replenishment receipt, according to some embodiments.
 - FIG. 58B illustrates an exemplary screenshot of a replenishment allocation, according to some embodiments.
 - FIG. **59**A illustrates an exemplary screenshot of a setup folders/automated robots screen, according to some embodiments.
 - FIG. 59B illustrates an exemplary screenshot of a setup workflow process screen, according to some embodiments.
 - FIG. 59C illustrates an exemplary screenshot of an assign approvers screen, according to some embodiments.
 - FIG. **59**D illustrates an exemplary screenshot of a review required approvals screen, according to some embodiments.
- FIG. **59**E illustrates an exemplary screenshot of a review FIG. 38 illustrates a prophetic block diagram of a server 55 invoices requiring approval screen, according to some embodiments.
 - FIG. 60 illustrates a flowchart representing a server method for hosting an eProcurement system, according to some embodiments.
 - FIG. 61 illustrates a flowchart continuing the flowchart of FIG. 60, according to some embodiments.
 - FIG. 62 illustrates a flowchart representing a server method for hosting an eProcurement system, according to some embodiments.
 - FIG. 63 illustrates a flowchart representing a server method for hosting an eProcurement system, according to some embodiments.

FIG. **64** illustrates a flowchart representing a server method for hosting an eProcurement system, according to some embodiments.

FIG. **65** illustrates a flowchart representing a server method for hosting an eProcurement system, according to some 5 embodiments.

FIG. **66** illustrates a flowchart representing a server method for hosting an eProcurement system, according to some embodiments.

FIG. **67** illustrates a flowchart representing a server method for hosting an eProcurement system, according to some embodiments.

FIG. **68** illustrates a flowchart representing a server method for hosting an eProcurement system, according to some embodiments.

FIG. **69** illustrates a prophetic block diagram of a server system, including an eProcurement provider hosted at the server system, according to some embodiments.

FIG. 70 illustrates a prophetic block diagram of an eProcurement system hosted at a supplier server, according to 20 some embodiments.

FIG. 71 illustrates a prophetic block diagram of an eProcurement system hosted at a purchaser server, according to some embodiments.

FIG. **72** illustrates a flowchart representing a server method ²⁵ for hosting an eProcurement system, according to some embodiments.

FIG. 73 illustrates a flowchart representing a server method for hosting an eProcurement system, according to some embodiments.

FIG. **74** illustrates a flowchart representing a server method for hosting an eProcurement system, according to some embodiments.

FIG. 75 illustrates a listing of exemplary folders and robots, according to some embodiments.

FIGS. **76** A-C illustrate a flowchart representing a server method for hosting an eProcurement system and for importing a purchase requisition, according to some embodiments.

FIG. 77 illustrates an exemplary screenshot of an imported purchase requisition, according to some embodiments.

FIG. **78** illustrates an exemplary screenshot of an imported purchase requisition highlighting required fields, according to some embodiments.

FIG. **79** illustrates a flowchart representing a server method for importing a purchase requisition and for reporting a status, 45 according to some embodiments.

FIG. 80 illustrates an exemplary field management interface in accordance with the present invention.

FIG. 81 illustrates an exemplary update favorite(s) process flow in accordance with the present invention.

FIG. 82 illustrates an exemplary document setup interface in accordance with the present invention.

FIG. **83** illustrates an electronic procurement system hosted at a supplier server.

FIG. **84** illustrates an electronic procurement system ⁵⁵ hosted at a purchaser server.

DETAILED DESCRIPTION

Purchasing organizations, particularly institutional organizations, frequently have their own established purchasing procedure and software framework. The established software framework is often developed over time using a variety of software packages or custom software. This 'homegrown' system may be difficult to interface with other procurement systems, and may also be difficult to interface with suppliers' systems.

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An integrated system, method, and computer readable storage medium for importing purchase requisitions from purchasing organizations is described. This integrated system may receive and import purchase requisitions in draft form (where some information is missing), or in submitted form (where all information is present and the requisition is ready for processing). The integrated system may communicate securely with the purchasing organization via secure communications. The secure communication may include data described using XML or other file formats.

This integrated system allows a purchasing organization to aggregate all of its spending regardless of where the original requisitions were created. The aggregated spending may be tracked in one system and used for accounting and budget validation, common workflow approvals, aggregation of spending for analysis and contract-negotiation, etc.

This integrated system also enables the use of a third party sourcing system. The sourcing system creates and executes request for proposal, request for information, and request for quotation processes to obtain information and bids from multiple vendors. This information allows a purchaser to make strategic decisions related to which vendor to use, and to whom the purchase requisition or purchase order should be sent. As part of the purchasing process, the selected bid or bids may require workflow validation or other validation before a purchase requisition or purchase order is submitted. By using a requisition import capability, a purchasing organization may link its sourcing tools and processes to its electronic procurement system.

This integrated system reduces the problem of lack of visibility into spending for the purchasing department, i.e., knowing what is being purchased at what price, by whom, and when. Without this visibility, purchasing departments cannot use the aggregated spending information to negotiate better contracts for the purchasing organization, or to identify preferred suppliers and rates. The integration prevents purchase requisitions outside of the purchasing organization's system (i.e., in "shadow" systems), where they would not be validated for accounting, budgeting, and authorization purposes.

Reference will now be made in detail to embodiments, examples of which are illustrated in the accompanying drawings. In the following detailed description, numerous nonlimiting specific details are set forth in order to assist in understanding the subject matter presented herein. It will be apparent, however, to one of ordinary skill in the art that various alternatives may be used without departing from the scope of the present invention and the subject matter may be practiced without these specific details. For example, it will be apparent to one of ordinary skill in the art that the subject matter presented herein can be implemented on any type of client-server compatible system containing any type of client, network, server, and database elements.

The terms module, engine, and application are used interchangeably herein.

FIG. 1 is a block diagram illustrating an exemplary embodiment of an eProcurement system in accordance with the present invention. The term "eProcurement architecture" used herein refers to a system and method that facilitates customized searching, data modeling, and order processing over an electronic network, using a client-server type architecture, where multi-tenants (e.g., end users/consumers, supplier users, etc.) can realize each of their specific business requirements with respect to the process of initiating and consummating transactions. In general, the eProcurement architecture of the present invention facilitates transactions between end users and suppliers. The end users may be individual users or members of an organization, such as a com-

pany or institution. For example, the end users may be any member of the organization authorized for performing procurement operations for the organization or the end user may be an individual of a sole proprietorship.

In a multi-person organization, procurement operations of 5 the organization are setup in a multi-level structure with a group of individuals who make requests for requisitions and an authorizing entity (e.g., manager) who approve such requests based on the organization's procurement policies. There may be a plurality of individuals assigned as the authorizing entity, and the authorizing entity may itself include multiple levels of authority with each higher level having more control over the procurement operations. The procurement policies may define the levels of authority, such as who can order what, and include one or more contractual relationships between the organization and one or more suppliers. By way of example only, the procurement policy may define that the lowest level end user of a particular department can only order certain products or services while a higher level end user can order or authorize orders of broader categories of 20 products and/or services. In another example, the procurement policy may require that certain products or services be ordered exclusively from a supplier with an exclusive contract with the organization. As another example, the procurement policy may require that a particular product be ordered 25 in a predetermined lot size due to a contractual discount negotiated from a particular supplier. The eProcurement architecture of the present invention facilitates transactions between multiple end users of any level of any organization with multiple suppliers taking into account the procurement 30 policies associated with each end user and supplier on a single platform (i.e., single instance, multi-tenant architecture).

As shown in FIG. 1, the eProcurement system 10 of the present invention includes end users 12, supplier users 14, and the procurement module 20 connected over a data communications network 16. The procurement module 20 includes access module 21, search engine 22, transaction module 23, business rules engine 24, and data repository 30. The data repository 30 may include one or more databases to store user data 32, hosted product index 34, product data 36, 40 and transaction data 38.

The access module 21 allows the end users and suppliers to set up and gain access to their respective accounts in the eProcurement system 10. For example, the access module 21 may include registration/account setup procedures to create a 45 new account on the eProcurement system 10. The access module 21 may also include authentication procedures (e.g., login ID and password) to determine the identity of the user and the user's profile (e.g., associated organization, level of access, etc.) before granting access to the procurement mod- 50 ule 20. Once granted access, the user may configure the account for customized access. If the user is a "super user" (i.e., a user with higher levels of access, such as a procurement supervisor of an organization), the super user may set conditions for access of other users from his organization. If the 55 user is a supplier, the supplier user may create or update the supplier account or provide/update product/service information (e.g., product catalog).

The search engine 22 allows the user to search through the hosted product index 34 to find a product and/or service 60 provided by the one or more suppliers. In general, the search engine 22 searches through the hosted product index 34, which contains tokenized data of all the products from all the suppliers stored in the product database 36. The search results of the search are processed by the business rules engine 24 and displayed to the user based on the business rules set for the user and the user's organization. The search engine 22

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includes a punch-out module 22a that allows the user to "punch-out" to an unhosted supplier catalog for products/ services not available through the eProcurement system 10. The user can only access those punch-out suppliers configured for him/her according to the business rules engine 24.

The transaction module 23 includes one or more of requisition module 23a, order module 23b, and tracking module 23c to facilitate a transaction with one or more suppliers. The requisition module 23a processes items selected by the user from the search engine 22 and creates a requisition. If authorization is required, the requisition module 23a notifies the designated authorizing entity of the requisition to obtain authorization. If the requisition is denied, the requisition module 23a sends a notification back to the user of the decision. If the requisition is approved, the user is notified and the requisition either a) is sent to order module 23b, or b) is marked as "complete" based on the business rules engine 24 because not all requisitions are necessarily converted to orders. The order module 23b converts the requisition into a purchase order according to the business rules in the business rules engine 24. The order module 23b sends the purchase order to the appropriate supplier in the proper format(s) designated for that supplier. Once the purchase order has been sent, the tracking module 23 receives confirmation of the purchase orders from the suppliers and keeps track of the purchase orders through the fulfillment process.

In general, a user (i.e., end user, super user, supplier user, etc.) gains access to the procurement module 20 through the access module 21. The access module 21 may include security measures, such as authentication (e.g., providing user ID and password), to identify the user by accessing the user data stored in the user database 32. User accounts may also be created through the access module 21. For example, a user (generally a super user) creates an account on the eProcurement system 10 by registering through the access module 21. The account may also be created by a system administrator of the eProcurement system 10 off-line who gives access to the user via emailing a registration link to the access module 21. Once an account has been created, the user may access the eProcurement system 10 through the access module 21.

FIG. 2 illustrates an exemplary embodiment of an eProcurement architecture in accordance with the present invention. As shown in FIG. 2, the eProcurement architecture of the present invention may include one or more end user/consumer interfaces 212 and supplier user interfaces 214, which may connect to one or more servers 220 over a wired or wireless network 216. These one or more servers 220 may be for user processing (e.g., end user processing servers 221), product database hosting (e.g., custom database servers 222), transaction processing (e.g., transaction processing servers 223), middleware/web methods (e.g., middleware/web methods servers (e.g., business rules) 224—e.g., for implementing business rules between end users and supplier users), and communication processing (e.g., web servers 225), such as streaming data/media, file hosting (e.g., FTP—File Transfer Protocol—server), web serving (e.g., HTTP/HTTPS, WWW, CGI-Common Gateway Interface, ASP-Active Server Pages, Servlets, JSP—Java Server Pages, etc.), facsimile transmission, proxy, telnet, chat, list, mail (e.g., SMTP-Simple Mail Transfer Protocol), news (e.g., NNTP-Network News Transfer Protocol), groupware, and other communication/data processing purposes. These one or more servers 220 may be hosted behind or outside a firewall 218 with or without failover and/or load balancers. These one or more servers 220 may be hosted over the Internet, within the same Intranet and/or subnet, on different Intranets and/or subnets, or in any other inter-networked configuration of

network **216**. The servers **220** may be implemented on MicrosoftTM Windows NT/2000/XPTM/XP Professional/ ServerTM/VistaTM (e.g., MicrosoftTM Internet Information Services (IIS)), Apache, UnixTM, z/OSTM, z/VMTM, LinuxTM, VMS, Netscape Enterprise ServerTM, iPlanetTM Web Server, 5un Java System Web Server, OracleTM Server, SQL ServerTM (e.g., MicrosoftTM, SybaseTM, MySQLTM etc.), Terradata server applications, or any other compatible server technology

End user interfaces 212 and supplier user interfaces 214 10 may be implemented on Internet web browsers such as Microsoft Internet ExplorerTM, Netscape NavigatorTM, MozillaTM FirefoxTM, Opera, Satori, Blazer, or any other Internet web browser capable of sending and receiving data using the Hypertext Transfer Protocol (HTTP). The data may 15 be transferred over an encrypted and authenticated communication layer (i.e., using secure HTTP, or as more commonly known, HTTPS). End user interfaces 212 and supplier user interfaces 214 may be implemented using a combination of HTML (Hypertext Markup Language), Macromedia 20 FlashTM, XML (Extensible Markup Language), CGI (Client Gateway Interface), ASP (Active Server Pages), JSPTM (JavaServer Pages), PHP (Hypertext Preprocessor), Java, C/C++, Visual Basic[™], Visual Basic Script, Perl[™], Tcl/Tk, SQL (Structured Query Language), and any other relevant markup/ 25 programming/scripting/query language or development environment.

Communication from the end user interfaces 212 and supplier user interfaces 214 to the server or plurality of servers 220, via the firewall 218 with failover and load balancer, may 30 be implemented over wired communication protocols through network 216. For example, at the Wide Area Network (WAN) level or at the Local Area Network (LAN) level, routed Internet Protocol (IP) packets may be transported using the IEEE 802.3 Ethernet standard, for example, on the 35 data link network layer. However, any network standard may be used, whether for packet encapsulation, path determination and logical addressing, or physical addressing, at any layer of these layers without departing from the scope of the invention. Also, the packet data may be transported over 40 interconnected hubs (not shown), switches 226, routers 227, and other network elements. At the WAN level, protocols such as Packet over Synchronous Optical Network (SONET) or Synchronous Digital Hierarchy (SDH), Asynchronous Transfer Mode (ATM) over SONET, Multi-protocol Label 45 Switching (MPLS), packet over Frame Relay, or other analogous protocols may be used to deliver data over longer distances. Interconnect repeaters, multiplexers (e.g., add/drop), and cross connects may be used to facilitate and ensure accurate transmission over the long-haul from point-to-point.

Communication from the end user interface 212 and supplier user interfaces 214 to the server or plurality of servers 220, via the firewall 218 with failover and load balancer, may also be implemented over wireless communication protocols over network 216. For example, at the LAN level (i.e., WiFi), 55 standards such as 802.11a, 802.11b, 802.11g, and 802.11n may be used to deliver data from point-to-point. Similarly, at the Metropolitan Area Network (MAN)/WAN level, standards such as 802.16e (i.e., WirelessMAN), WiMax, Universal Mobile Telecommunications System (UMTS) over Wideband Code Division Multiple Access (W-CDMA), GSM, GPRS, or EDGE may also be used to deliver data from point-to-point. As with the wired networks, other standards and protocols may be used without departing from the scope of the invention.

The eProcurement architecture of the present invention includes a data repository 230. The data repository 230 may

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be implemented using one or more databases to store end user data 232, hosted product index 234, master product data 236, and transaction data 238, in accordance with business rules (implemented via, for example, a business rules engine 24). The data repository 230 may be implemented using any type of data storage device without departing from the scope of the present invention. Moreover, the data repository 230 may be managed by any database platform (e.g., Oracle, Microsoft Access, IBM DB2, etc.) without departing from the scope of the present invention.

End user interfaces 212 and supplier user interfaces 214 may also allow an implemented feature that enables the setting of user configuration preferences. This feature allows a super user, with enhanced administrative capabilities, to have full access to the features of end user and supplier user interfaces. Some of these features may include: sending an email notification of a specific requisition order, and a corresponding link for accessing the same; full access to the features of the end user and supplier user interfaces; the capability to approve or reject a full order or a specific order item requested by an end user; the capability to take ownership and/or control of a specific requisition order, which may be organized according to a product or supplier category; the capability to expedite or accelerate an order through to specific steps along the ordering process, including the final review step; and, the capability to invoke and view a summary and history of each end user's latest order activity.

Moreover, a super user, for example, may design and/or otherwise configure and customize the style, type, layout, and level of data that is displayed on the respective end user interface 212 and supplier interface 214 for their respective organizations. A super user is also able to invoke a setup feature to choose which end users may have access to specific suppliers. Furthermore, a super user may also determine what information is required from the end users and supplier users of their respective organization, and determine the level of access at which an end user may access a specific supplier within the hosted supplier products catalog. This capability enables a super user to configure, for example, whether an end user can view specific products from specific suppliers, the currencies given for product/item pricing, and place orders. Moreover, the end user interface of the present invention allows for features of the present invention to be configured as permission driven. As such, certain features may be accessible to each end user, based on the end user's precedence within the organization, which likely affects his/her corresponding permission level. In addition, each feature is configurable to each end user based on a set of variable options. These variable options may include the ability to set a specific layout/view, a preferred number of search results, a preferred list of products, or a preferred list of suppliers. Also, each feature may include a help function that allows an end user to resolve inquiries or difficulties relating to the feature. The end user interface implementation is usually account login-based and, as described in further detail above, may encompass multiple server types (e.g., running a Linux OS), a redundant firewall and load balancer, and a priority-based software programming architecture (e.g., implemented in JAVA and JSP).

FIG. 3 illustrates an exemplary user interface in accordance with the present invention. For purposes of example only, an end user interface is used to describe various aspects of the present invention. As shown in FIG. 3, user interface 300 provides customized information for the user. For example, the user is a member of a fictitious group named Weet Organization. The user interface 300 includes one or more of an organizational message area 310, any system message area 320, and task items area 330. In the example

shown, the user is a super user and therefore, the "Admin" tab **340** is active. Had the user been an end user, the "User" tab would be active and the "Admin" tab **340** either would not be displayed or would be inactive. All of these areas and information displayed therein may be customized through the access module **21**. Any configuration definitions are then stored in the user database **32** and invoked upon access/login.

FIG. 3 illustrates an exemplary embodiment of the configuration tools available to a super user. In general, the eProcurement system 10 of the present invention provides a super user the tools needed to configure every aspect of the eProcurement process of an organization for complete customization, thereby effectuating a single instance multi-tenant architecture. That is, the eProcurement system 10 establishes a centralized system that is customizable for each user and/or organization, thereby providing a robust and yet an efficient eProcurement system. More specifically, configuration tool 350 allows a super user to customize the configuration of the eProcurement system 10 specifically for an organization and its users. While exemplary configuration tools are shown, 20 other tools may be included without departing from the scope of the present invention.

FIG. 4A illustrates an exemplary user management tool 400 to create or modify user access, manage user registration, and define the organizational structure. For example, FIG. 4A 25 illustrates a user access human resources (HR) configuration tool 440. In particular, HR configuration tool 440 allows the super user to establish and describe the organization. For example, the HR configuration tool 440 may be used to define various departments of the organization (442), various posi- 30 tions of the organization (444), various roles of the users in the organization (446), and relationships between the roles, positions, and departments defined for the organization (448). As shown in FIG. 4A, the various departments of the organization that require procurement services may be "Engineer- 35 ing," "IT," "Legal," "Math," etc. As shown in FIG. 4B, there may be various positions within the organization, such as "Buyer," "Documentation Editor," "Professor, "Researcher," etc. As shown in FIG. 4C, the HR configuration tool 440 is used to define various roles of the users within the organiza- 40 tion, such as "Administrator," "Approver," "Catalog Manager," etc. As shown in FIG. 4D, the HR configuration tool 440 is used to define the relationship between the department, position, and role of the users. For example, a "Professor" in "Engineering" may be designated as an "Approver" and 45 "Requisitioner" for the organization while a "Researcher" of "Engineering" may only be a "Requisitioner." In this manner, the HR configuration tool 440 provides a simple yet efficient mechanism to define the organization for which the eProcurement system 10 is to be utilized.

Once the organization has been defined through the HR configuration tool 440, user access tool 410 may be used to create or modify a user's access to the eProcurement system 10 for the user's organization. As shown in FIG. 4E, the user access tool 410 may be used to create a new user access 55 account (410a) or the user database 32 may be searched (410b) for an existing user in the eProcurement system 10. To create a user access account, the user access tool 410 requires entry of the user's personal information (e.g., name, phone number(s), email address) and authentication information 60 (e.g., login ID and password). In addition, the user's department and position information as created through the HR configuration tool 440 is also provided. In an exemplary embodiment, the department and position information created through the HR configuration tool 440 are shown in a 65 drop-down menu for easy selection and entry. To simplify the creation of an account, existing user files may be imported

into the user database through the user import 430. Once a user access account has been created, the newly created accounts are activated through the user registration monitor 420. As shown in FIG. 4F, a list of new user access requests is presented in the user registration monitor 420. A designated approver for the organization then reviews and approves the user access account to be activated for the user.

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In accordance with an exemplary embodiment of the present invention, every aspect of the organization may be defined and customized in the eProcurement system 10. For example, as shown in FIG. 4A, once a "Department" has been created for an organization, the created department may be activated (442a). Moreover, each department may be defined with business rules related to the department's requisition (442b), purchase orders (442c), and fulfillment (442d). For example, FIG. 4A shows that the "Engineering" department has been designated as an active department with the "Requisition" and "Purchase Order" rules including a list of approvers for the Engineering department. As shown in FIG. 4B, a created position may be designated for a created department. For example, FIG. 4B shows that the organization has the "Professor" position for the "Engineering," "Math," "Microbiology," and "Purchasing" departments. FIG. 4G illustrates an exemplary embodiment of the HR configuration tool 440 for defining roles of the organization.

For each role, the roles configuration tool 446 is used to define the role properties (446a), purchasing properties (446b), access permissions (446c), materials management rules (446*d*), and history of modifications to these definitions (446e). For example, for the role of "Administrator," the role properties 446a (FIG. 4G) may include whether the designated role is active in the organization and the purchasing properties 446b may include definitions of any internal and external purchasing codes and information (e.g., "PRWF") (FIG. 4H), purchasing/approval limits (FIG. 4I), allowed product views (FIG. 4J), and allowed punch-out access (FIG. **4K**). The access permissions **446**c may be defined for the roles including shopping cart permissions (FIG. 4L), orders (FIG. 4M), approvals (FIG. 4N), accounts payable (FIG. 4O), administration (FIG. 4P), management of materials (FIG. 4Q), and custom fields permissions (FIG. 4R). The materials management 446d defines the available projects and location of groups to the various roles (FIG. 4S). The history section **446***e* keeps track of a history of all the actions (e.g., modified, created, product view added, product view removed, punchout access added, punch-out access removed, project added, project removed, location added, location removed, etc.) and the sections to which the actions were applied (e.g., role properties, product views, punch-out access, materials management, permissions, purchasing/approval limits, custom field permission definitions, etc.) including the old value of the parameter and the new value of the parameter (FIG. 4T).

Once the internal organizational structure and descriptions of key positions of users in the organization have been defined using the user management tool 400, specific users and their level of access may be defined. As discussed above, the level of access of a user may be assigned globally based on their positions and/or roles in the organization. In addition, the eProcurement architecture of the present invention allows customization down to specific individuals all within the single instance, multi-tenant environment. For example, FIG. 5A illustrates an exemplary user profile tool 500 for defining a user's account in the eProcurement system of the present invention. As shown, the user profile tool 500 includes one or more of a user setting tool 510, user purchasing tool 520, user permissions tool 530, user materials management tool 540, and user setting history tool 550. These tools provide cus-

tomization of the user's account for various levels of access to the eProcurement system of the present invention all within the single instance, multi-tenant environment.

For example, as shown in FIG. 5A, an exemplary user setting tool 510 of the present invention shows that the user is a "Professor" in the "Engineering" department. As discussed above, users in this department and position have default levels of access defined by a super user using the user management tool 400. However, because a user may have additional roles assigned to the user that are beyond the normal scope of the user's position, the eProcurement system of the present invention allows a super user to modify the user's level of access on an individual level. For example, FIG. 5B illustrates an exemplary roles selection tool 510c to modify the roles assigned to the selected user. Through the roles 15 selection tool 510c, a super user may be able to specifically tailor the roles of a user down to the individual level to provide customized access to the eProcurement system of the present invention. Similarly, the user's departmental permissions may be modified using the department permissions tool 510d. 20 Various aspects of the user's account may also be customized, such as the user's personal settings 510b, email preferences 510e, and navigation setup 510f. As with the user management tool 400 and the roles/permissions tools 510c and 510d, all customizations may be performed by simply activating/ deactivating a function available on the eProcurement system of the present invention. For example, FIG. 5C illustrates an exemplary email preference tool 510e, which lists all of the action notifications that may be received via email. A user only has to activate/deactivate a preference by selecting the 30 notifications the user wishes to receive via email. Similarly, FIG. 5D illustrates an exemplary navigation setup tool 510f. As shown, a user simply selects the navigation tools to be displayed (or removed) from the top-level navigation bar.

The user purchasing tool 520 shown in FIG. 5E allows a 35 super user to define the purchasing activities of the user. For example, as shown in FIG. 5E, user purchasing tool 520 includes one or more of the custom fields tool 520a, financial approvers tool 520b, purchasing/approval limits tool 520c, shipping/billing address tool **520***d*, product views tool **520***e*, 40 and punch-out access tool 520f. The custom fields tool 520a is similar to the purchasing properties tool 446b (FIG. 4H) to define the internal and external codes needed to make a purchase (e.g., product code). The financial approvers tool 520b designates purchase approvers for the user. Default, pre- 45 ferred, and additional approvers may be designated through the financial approvers tool 520b as well as removing approvers for the user. The purchasing/approval limits tool 520c designates the limits of purchases and/or approvals of purchases allowed for the user. FIG. 5E illustrates an exemplary 50 view of the purchasing/approval limits tool 520c. As shown, the limit values of various activities related to purchases may be defined for the user. The shipping/billing address tool 520d designates the shipping/billing address associated with the user. The product views tool 520e designates the type of 55 products the user is allowed to view. The punch-out access tool 520f designates the punch-out catalogs that are allowed to be accessed by the user. For example, FIG. 5F illustrates an exemplary punch-out access tool 520f. As discussed above, these settings may be designated as a default based on the 60 department/position/role assigned to the user. However, these tools may be used to customize the default settings for the specific individual user in accordance with the present invention.

In a similar fashion, the user permissions tool **530** includes 65 one or more of tools to customize the user's access to the shopping cart (FIG. **5**G), order processing (FIG. **5**H),

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approval processing (FIG. 5I), accounts payable processing (FIG. 5J), administration permissions (FIG. 5K), materials management (FIG. 5L), and custom fields permissions (FIG. 5M). The materials management tool 540 designates inventory locations based on projects and groups (FIG. 5N) as well as default/preferred access locations (FIG. 5O). As discussed above, the history tool 550 keeps track of all actions/changes made to the various parameters.

FIG. 6A illustrates an exemplary organization setup tool 600 for designating business rules such as method of payment (FIG. 6A), tax (FIG. 6B), shipping/handling (FIG. 6C), settlement (FIG. 6D), purchase order terms (FIGS. 6E-G), order distribution process (FIGS. 6I-J), and history of all actions effectuated through the organization setup tool. By organizing all of the terms and conditions of an order for each organization in a single instance, multi-tenant architecture, each requisition effectuated on the eProcurement system of the present invention is processed efficiently.

FIG. 7 illustrates an exemplary workflow setup tool 700 to define the workflow process of a requisition, purchase order, and fulfillment. As shown in FIG. 7, the workflow setup tool 700 in accordance with the present invention creates a shared workflow space 710 and allows for the assignment of users (e.g., individual users, or users of various user roles) to be included in the workflow process.

Other configuration tools include document setup tool (FIG. 82, document setup interface) to organize documents related to requisitions, purchase orders, and sales orders for access by the user. The document setup tool keeps track of the name of the document creator, version number, and any deployment dates, as well as other data related to the document. Moreover, the eProcurement system in accordance with the present invention includes a field management tool (FIG. 80, exemplary field management interface) that allows super users to create, modify, and manage every field/parameter related to the procurement process used on the system. Accordingly, the eProcurement system of the present invention may be custom tailored for each organization/user role/user while maintaining its single instance, multi-tenant environment

As shown in FIG. 2, end user interfaces 212 and supplier user interfaces 214 according to the present invention provide access to the plurality of modules of the eProcurement system 10 (FIG. 1). As described above, the end user interface 212 is configurable by both end user and super users. Moreover, the end user interface 212 includes one or more features, for example, such as searching and viewing a hosted supplier products catalog, invoking purchase/requisition orders, consummating sales transactions, invoking status queries and viewing the response, and setting end user configuration preferences as described further below. For example, the search and view feature allows for searching via product description, supplier name, manufacturer name, catalog no. (SKU), a filtering capability, and by browsing: catalog/non-catalog items, suppliers, or contracts. A user may invoke any of these search inputs alone or in combination with others. Also, Boolean and fuzzy logic functionality is available for searching and allows a user to devise targeted search strategies that may return more accurate search results. Once a user has invoked a search using any of the inputs described, the user may then view the returned results. The returned results can be filtered by a user based on category or supplier. Also, a user may choose to organize the returned results such that similar results are listed in proximity of one another. For example, a user may organize returned results by weight, supplier, category, catalog number, product description, UOM, product size, price, quantity, and/or currency.

The catalog may be implemented as single instance but multi-tenant (or, as multiple instance, single-tenant), and may further include custom views of items as set by each internal end user and/or organization. An end user may specify favorites within the catalog. Such favorites are available for later 5 viewing or purchasing by the end user. Any updates made to an end user favorite within the catalog will be automatically propagated to the end user's favorite(s) view as well (FIG. 81, an exemplary update favorite(s) process flow). The catalog may allow for supplier classifications and multiple products 10 may be linked to a single supplier. Also, the catalog can be activated or deactivated through a simple click on the end user interface, and specific product categories can be globally manipulated and applied to affect all end users. Each catalog may contain information regarding one or more suppliers, 15 and a master product database is primarily tasked with populating each hosted supplier products catalog. This master product database is a relatively large database with a plurality of attributes related to one or more specific products.

In addition to the hosted supplier products catalog, punch- 20 out catalogs may also be implemented as an alternative and supplement to the hosted supplier products catalog, and are made available, for example, when the hosted supplier products catalog does not yield sufficient or satisfactory results. The punch-out catalogs link to outside/third-party catalogs, 25 are not hosted, and may also contain end user organizationspecific prices. Processing modules executed on the custom database servers invoke each punch-out instance. Multiple punch-out catalogs may be accessible by a single end user. An end user can return from a punch-out catalog to the hosted 30 supplier products catalog, and the remainder of the features of the eProcurement architecture, via a submit feature, which will then return to the processing module that initially invoked the punch-out instance. Punch-out catalogs may be configured to display relevant catalogs to an end user, based 35 on the end user organization. An end user can browse punchout catalogs to search for more accurate results and may, subsequently, invoke a requisition order via the third-party web site and order processing methods. Also, one or more purchase orders can be sent from one or more punch-out 40 catalogs, but each punch-out order session may generate a single purchase order that may ultimately include orders from non-punch-out or hosted catalogs.

Further, with respect to the hosted supplier products catalog, there may be a feature implemented to allow both its 45 searching and viewing. The search/view catalog feature is invoked via a processing module that executes on the custom database servers. Upon the execution of such a search by an end user, search results can be displayed via the end user interface. The catalog search results can be displayed, for 50 example, using a static or dynamic interactive list or table, attachment, graphic, or link. An end user may also have the option of choosing the appropriate supplier(s) from which to place an order. Upon an end user's selection of a particular supplier, the relevant supplier data is then forwarded to the 55 transaction processing feature. The end user may later invoke a status query, via a processing module executed on the custom database servers, on a preexisting order and, subsequently, receive status notifications regarding the order.

The search feature may be implemented using several subfeatures such as, for example, customized annotations (with icons) of preferred/contract suppliers, a product/supplier filter, and a product size filter. The search feature is invoked by a processing module that is executed on the custom database servers. The customized annotations (with icons) of preferred/contract suppliers allows certain products to be highlighted within search results. Furthermore, the product/sup-

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plier filter of the search feature allows certain products to be displayed, while others are hidden, depending on specific filter criteria chosen by the end user/organization. Such criteria may include, for example, price thresholds, hazard level, approximate delivery date, product size, supplier, and/or currency.

The search architecture is based upon an indexed, tokenized-type implementation. This search architecture may include a search engine and a tokenization feature, both of which are invoked via processing modules executed on the custom database servers. Product elements such as the product name, industry, price, currency, and availability, among others, are primarily used to generate a product search index (e.g., a token). The process of generating a product search index/token is called "tokenization" and may be executed by a tokenization feature invoked via a processing module. The indices/tokens generated as a result of the tokenization feature, which relate to various products of a multitude of suppliers, may be stored within and executed on the hosted supplier products catalog. Searching is executed against "verticals." A vertical is designed similar to a drill-down menu architecture that consists of root nodes and leaf nodes, which are children of their respective roots. Through the use of tokenization and verticals, a layer of abstraction is added that is unique in comparison to typical text-based searching of a large database, like the master product database. This added layer of abstraction allows for better organization of the underlying data. As a consequence, the use of tokens to search verticals, which organize supplier product data and search the hosted supplier products catalog, enables an efficient and methodical search strategy to be executed. Search results returned from searching the hosted supplier products catalog are forwarded back to the search engine and may appear via the end user or supplier user interfaces. For an end user, designated preferred suppliers usually appear first in the search results.

Further contained within the search architecture, a feature to allow the invocation of status queries and viewing of the response may be implemented. This feature allows a plurality of end users to send queries/requests via middleware/web methods, or direct Internet posting techniques, to the product catalog. The feature is itself invoked by a processing module that executes on the custom database servers. Such queries/ requests may be intended for finding, buying, or managing products. Such products may be those of preferred contractors that are matched to the end user based on a plurality of criteria like permission, product type, industry, price, quality control metrics, delivery date, warranty types, currency, and/ or locale. Each product catalog may contain information regarding one or more specific products. A master product database populates the hosted supplier products catalog with various types of information relating to one or more specific products. The various types of information may include a "stock keeping unit" (SKU) identifier, supplier information, and product category/description/attribute information.

Further also to the search architecture, an in-stock query feature may be implemented to allow an end user, through the middleware/web methods, or direct Internet posting techniques, to determine whether any supplier might have a particular product in-stock, and/or the warehouse/location where that stock is maintained. The feature is itself invoked by a processing module that executes on the custom database servers. Once the in-stock query feature is invoked, relevant suppliers are sent individual queries. Subsequently, each supplier response to an in-stock query is processed and the appropriate

end user is notified after the in-stock query receives the supplier response(s), but before returning to the processing module

Moreover, a quick order feature may also be implemented to enable several other sub-features such as, for example, 5 searching by product category, SKU identifier, currency, or host product category number/supplier part number. The feature is itself invoked by a processing module that executes on the custom database servers. Subsequently, the order feature is initially invoked by an end user that has completed a quick order search. Thus, the quick order feature enables an end user that may have knowledge of specific product attributes to perform an expedited search, retrieve search results, and proceed to ordering.

The search results of a product search exhibit other features 15 of the invention such as those related to the presentation of results. For example, suppliers and categories contained within search results can be displayed using different customizable icons, which may be used to highlight specific suppliers and product categories. Such results can also be 20 ranked according to priority based on whether they are supplied from preferred or contracted suppliers, a preferred category of products from suppliers, or a preferred currency. Non-preferred or non-contracted supplier or currency results may also presented to end users. Moreover, a product com- 25 parison chart can be invoked to highlight the differences and similarities among two or more products. The chart can contain static or dynamic presentation attributes based in part on supplier-provided data. For example, the in-stock attribute, a dynamic presentation attribute, can be used to identify 30 whether specific products are actually available in a supplier's inventory, and their corresponding prices and/or currencies. A search result list can be organized by category and/or vendor based on end user preferences. Also, icons can be used to further display and highlight relevant information regard- 35 ing products such as, for example, whether products are hazardous, toxic, poisonous, or are considered to be controlled substances. A proprietary taxonomy can also be implemented against modeling product categories to enable more efficient searching and, ultimately, user-friendly, organized search 40 results.

FIGS. **8**A-**8**D illustrate exemplary search engines in accordance with the present invention. For example, FIG. **8**A illustrates an exemplary parametric search engine **810** and punchout catalogs **820**. FIG. **8**B illustrates an exemplary quick order search engine **830**. FIG. **8**C illustrates an exemplary browsing engine based on suppliers. FIG. **8**D illustrates an exemplary browsing engine based on categories of the products and/or services. Other search engines may be used without departing from the scope of the present invention. Therefore, an eProcurement system in accordance with the present invention couples the configuration tools described above for customizing access to specified suppliers and/or specified types of products based on department, position, roles, and/or permissions of the user for each organization with various 55 search engines in a single instance, multi-tenant architecture.

As shown in FIG. 2, the supplier user interface 214 in accordance with the present invention and further described below is configurable by supplier users and super users, and includes one or more features, for example, such as accessing 60 a supplier hosted products catalog, viewing and responding to purchase orders, consummating sales transactions, viewing and responding to status queries, and setting supplier user configuration preferences. Each individual end user and supplier user may have a different interface from another end user and supplier user, respectively. Furthermore, the supplier end user interface of the present invention may allow a plurality of

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supplier users to send queries/requests via middleware/web methods server 224 to custom database servers 222, and to a hosted supplier products catalog 234 that is multi-tenant managed. A remote supplier user query/request is sent via the supplier end user interface 214 over the Internet, or other networked connection, and is first received by the web servers 225 after passing through the firewall 218. Then, the web server 225 passes the query/request to the middleware/web methods server 224, where business rules may be enforced. Subsequently, depending on whether the query/request is related to a transaction or a user search, it is either forwarded to the transaction processing servers 223 or custom database servers 222, respectively. For either type of query/request, the hosted supplier products catalog 234 is then readily accessible via processing modules for exchanging transaction/ product data, or performing a search/supplier operation. The hosted supplier products catalog 234 can serve as a quasi-link between the end user interface and the supplier interface because it is accessible by both interfaces. Supplier users can access the catalog via the middleware/web methods servers 224, which then forward the supplier access request to the custom database servers 222 and processing modules for execution, in order, for example, to update their own supplier data. End users may be able to search multiple suppliers within the catalog via the end user interface 212, subject to access rules set by a super user. End users may search the catalog for specific end user product requirements via the middleware/web methods servers 224, which forward the end user search request to custom database servers 222 and processing modules for execution. Subsequently, the end user may then invoke requisition and purchase orders via the middleware/web methods servers 224, which forward the end user order to the transaction processing servers 223 for execu-

As described above, to support the product search function, the eProcurement system of the present invention includes a master catalog database of all the products from all the suppliers hosted on the system to implement a single instance, multi-tenant environment. Accordingly, the eProcurement system of the present invention includes a catalog management tool 900. The catalog management tool 900 includes one or more of supplier tool 910, categories tool 920, supplier classification tool 930, category classification tool 940, product views tool 950, pricing tool 960, map attributes tool 970, and consortium management tool 980.

FIG. 9A illustrates an exemplary catalog management tool 900 with an exemplary supplier tool 910 invoked. The supplier tool 910 includes a search engine that searches for existing suppliers hosted in the eProcurement system of the present invention. Furthermore, the supplier tool 910 adds new suppliers not yet hosted in the system. FIG. 9B illustrates an exemplary categories tool 920 that configures all the products offered from the hosted suppliers into defined categories. Classifications for suppliers and product categories within the system of the present invention are defined and managed by the supplier classification tool 930 (FIG. 9C) and category classification tool 940 (FIG. 9D). In particular, new classes of suppliers and product categories may be created, defined, and configured as needed through the supplier classification tool 930 and category classification tool 940. In addition, existing classifications of suppliers and product categories may be modified. The product views tool 950 manages the views of products based on the defined supplier and product categories (FIG. 9E).

FIG. 9F illustrates an exemplary pricing tool in accordance with the present invention. As shown, pricing tool 960 manages various pricing sets of each hosted supplier for the

hosted products (or, the tool **960** may also be applied to non-catalog items, forms, or other non-hosted suppliers or products/items). The pricing set types may include organizational prices, contract prices, list prices, and consortium prices. Other pricing sets may be used without departing from the scope of the invention. The pricing tool **960** tracks versions of each type of pricing sets, status of the pricing sets (e.g., implicitly approved, not reviewed, rejected, approved, etc.), as well as the audit history of each pricing set. Accordingly, the appropriate pricing set may be tracked, managed, and invoked for each organization for each type of product.

Other types of catalog management tool 900 include the map attribute tool 970 and consortium tool 980. The map attribute tool 970 manages various parameters of the procurement activity, such as product codes, parameter format, and 15 unit of measure (UOM). For example, commodity code configuration parameters may be set through the map attribute tool 970 to determine if and how the category taxonomy is to be mapped to, for example, an organization's set of category/ commodity values. The commodity codes may be modified as 20 categories, sub-categories, and on down to the product level. The list of values may be set manually or imported/exported from/to an already existing file. As another example, universal product codes (e.g., UN/SPSC) and UOM may also be configured to be mapped to an internal organization codes for 25 automatic conversion when searching, viewing, and ordering products. Further, UOM may be mapped from standard UOM to organization specific UOM. The consortium tool 980 defines various consortiums that an organization may be a member of and offer consortium pricing by designating a 30 supplier as a consortium supplier. Hence, all organizations that are members of the consortium will be offered the consortium pricing set when ordering from the designated sup-

As shown in FIG. 2, the server technology of the present 35 invention includes a middleware/web methods server 224 that hosts a variety of features related to administrative services management, content management, and application management described above. The middleware/web methods server 224 may, for example, manage business rules (i.e., the rela-40 tionships) between end users and suppliers based, in part, on contractual terms or other arrangements, as processed according to the price and file management feature. For example, supplier user-side business rules may, for example, designate preferences regarding delivery terms (e.g., restric- 45 tions against odd lot sales, FOB preference, carrier preference, etc.), and price and insurance terms (e.g., CIF preference, applicable sales tax, etc.). Similarly, end user-side business rules may, for example, designate preferences regarding preferred suppliers, delivery terms (e.g., FOB pref-50 erence, default quantity, carrier preference, etc.), and price and insurance terms (e.g., CIF preference, applicable sales tax, etc.). At least one advantage of implementing end userside and supplier user-side business rules is the capability to generate customized purchase orders in accordance with contractual or default business rules. Such purchase orders are created by the invoke requisition/purchase orders feature, which is invoked via processing modules that are executed on the custom database servers 222. Middleware/web methods server 224 may apply default ordering, sales, delivery, and 60 other terms in the instance where an end user and supplier user do not have existing contractual terms or other arrange-

The middleware/web methods server 224, as well as the transaction processing server 223, implements the price and file management feature to access existing contracts between end users and suppliers. The feature is usually implemented

as a component of the middleware/web methods server 224, but may also be invoked via transaction processing modules that are executed on the transaction processing servers. Contract management algorithms may also be implemented as a sub-feature of the price and file management feature. For example, the algorithms are usually responsible for accessing, retrieving, and processing data from each respective end user and supplier that might have negotiated a contract. FIG. 10 illustrates an exemplary contracts management tool 1000 that may be used to manage the contracts between an organization and a supplier. The contract data is accessible by the transaction processing servers 223 and transaction database 238. Suppliers are able to submit product prices and other product related data via the price and file management feature. Furthermore, multiple pricing/currency schemes can be created by suppliers for end user organizations and may be based on contractual terms negotiated between end user organizations and suppliers. Individual end users within the same organization, for example, may be assigned different price/ currency schemes that may be based on different contractual terms with an individual supplier. A designated end user (e.g., a "contract manager"), akin to a super user, can be assigned the responsibility for managing and choosing the pricing schemes displayed to each individual end user within the organization. The designated end user may also be tasked with ranking the spending thresholds for triggering a new price tier. Individual end users are capable of accessing pricing schemes for supplier products where the end users have been granted access by the designated end user or super user. By default, the lowest supplier pricing scheme available is first displayed to the end user, although other pricing schemes may also be available and accessible.

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The following algorithm, for example, may be implemented to determine which pricing scheme should be displayed to an individual end user. First, all pricing schemes for a specific product may be denoted as accessible. A filter-type method may then be used to exclude pricing schemes denoted as inaccessible to the end user organization and, thus, allowing only accessible pricing schemes. Another filter-type method may be used to determine which accessible pricing schemes, if any, are related to contracts negotiated between the end user organization and accessible suppliers. If no pricing schemes are related to any contracts, then a default/general pricing scheme is displayed to the end user. Finally, if at least one pricing scheme is related to any related contracts, then a filter-type method excludes those pricing schemes related to contracts deemed inaccessible to this end user, and permits the accessible pricing schemes to be displayed. The displayed accessible pricing schemes would, however, be subject to the end user spending thresholds, which may be set by a super user. When an end user invokes the generation of a purchase/requisition order, the appropriate pricing scheme is referenced and can be based upon available contractual terms with the appropriate supplier.

An end user organization can manage pricing schemes such that distinct contracts are assigned to specific end users or super users. The feature to manage pricing schemes is invoked via transaction processing modules executed on the transaction processing servers 223. The specific end users or super users have the ability to approve or reject contracts, and set extended dates. Moreover, supplier users have the ability to create multiple pricing/currency schemes that may be based on contractual terms with end user organizations. Whether an individual end user/organization is a constituent of a trade group, department, or other organization, may influence the pricing/currency scheme determination. Supplier users can also have the ability to load single or multiple

pricing/currency schemes for end users within the same data sink (e.g., hosted supplier products catalog), which may later be processed by the price and file management feature and assigned to each respective end user. Moreover, end users can designate specific products from supplier pricing/currency 5 schemes as favorites. End user favorites can be dynamically updated with the lowest available supplier pricing scheme.

The transaction processing servers 223 of the present invention may execute transaction processing modules that query, update, and/or create data model instances within the transaction database 238. Moreover, end users can also approve, request to modify, or reject supplier products within hosted catalogs, and can also assign and route specific supplier products to other appropriate end users for review, dependent upon end user specific attributes like title within 15 the organization. For example, certain end users may be able to access hazardous and/or expensive supplier products, while other end users may not be able to do so based on their precedence/role within the end user organization. Similarly, certain end users may also have the ability to make high- 20 volume orders, while others may not. The hosted supplier products catalog 234 may be routinely updated by each supplier user at his/her discretion, or on a monthly, quarterly, or annual basis, and may contain data from suppliers such as, for example, custom product lists and end user organization- 25 specific prices/currencies.

FIG. 11A illustrates an exemplary cart and requisition tool 1100 in accordance with the present invention. As shown in FIG. 11A, the cart and requisition tool 1100 includes an active cart 1140 for tracking the items designated for purchase from 30 the search results described above. In an exemplary embodiment illustrated in FIG. 11A, the active cart 1140 includes requisition workflow tool 1110 that displays a live view of the requisition process for the items in the cart. For example, the requisition workflow tool 1110 displays the status of the 35 requisition from the point at which a product is added 1110a, the cart is edited 1110b, the requisition is reviewed 1110c, and the order is placed 1110f. The requisition workflow tool 1110 further displays a purchase requisition approval step 1110d as well as a purchase order preview step 1110e. Each of the 40 status boxes 1110a-1110f of the requisition workflow tool 1110 may be invoked to activate the tool that manages the corresponding status. For example, invoking the "Add Products" box 1110a (e.g., clicking on the box) activates the search engine to search for additional products to be added to 45 the cart 1140. Invoking the "Edit Cart" box 1110b activates the active cart 1140 for editing the products in the cart. Invoking the "Review" box 1110c activates a summary of the products included in the requisition, including, for example, accounting codes, billing and shipping addresses, and other 50 customizable data elements that may be configured by the user's organization. Invoking the "PR Approvals" box 1110d displays the set of workflow/approval steps an invoked requisition will be processed through prior to order creation. Invoking the "PO Preview" box 1110e activates a list of 55 purchase orders that are generated if the invoked requisition is approved. Invoking the "Place Order" box 1110f submits the invoked requisition to the steps of the workflow/approval

Cart information 1120 such as cart name 1120a, description 1120b, priority 1120c, and assigned approver 1120d are also displayed and may be edited. The cart information 1120 further includes supplier and line item details organized alphabetically, for example, according to each supplier's name, and lists each chosen product description, catalog 65 number, size and/or packaging data, unit price, quantity ordered, price, and currency. For each supplier there is also a

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corresponding supplier subtotal that is calculated according to the total of products chosen by the user.

FIG. 11B illustrates further details of the exemplary cart and requisition tool 1100 in accordance with the present invention. As shown, the cart and requisition tool 1100 includes a requisition review tool 1150, purchase request approval tool 1160, and purchase order preview tool 1170. As described above, the various status boxes (e.g., 1110c-1110e) in the requisition workflow tool 1110 activate the corresponding tool 1150-1170. As shown in FIG. 11B, the requisition review tool 1150 displays information about the requisition being built. For example, as shown, the requisition review tool 1150 includes a summary page 1150a that displays all the information regarding the requisition being reviewed, such as the general information, shipping information, billing information, accounting codes, internal/external notes and attachments, as well as supplier/line item details of the products in the cart 1140. All of the information shown in the requisition summary page 1150a may be edited by invoking the corresponding tool, such as the shipping/handling tool 1150b, billing tool 1150c, accounting code tool 1150d, notes and attachment tool 1150e, supplier information tool 1150f, and taxes/S&H pricing tool 1150g.

For instance, the shipping/handling tool 1150b may be used to set the shipping address of the products in the purchase order as well as designate delivery options, such as "expedite," "shipping method," and "requested delivery date." The billing tool 1150c may be used to set the billing address and billing options, such as accounting dates. The accounting tool 1150d may be used to designate the accounting information of the requisition, such as any fund/grant contacts, organization information, account numbers, product codes, activity summaries, and location. The notes and attachments tool 1150e may be used to designate any internal codes associated with the products in the purchase order, such as custody codes and equipment codes used in the organization. The supplier information tool 1150f may be used to assign or modify supplier information for the products in the order, such as contract information with the supplier, purchase order number, quote number, and purchase order clauses. The taxes/S&H tool 1150g may be used to define the tax/S&H information related to purchases from a particular supplier, such as tax percentage and/or S&H cost from total purchase price (e.g., 0% tax, free shipping if over \$200 purchase, etc.).

FIG. 11C illustrates an exemplary purchase request approval tool 1160 that corresponds to the purchase requisition approval step 1110d in accordance with the present invention. The exemplary purchase request approval tool 1160 graphically portrays the status of the requisition being reviewed (e.g., submission of the purchase requisition 1160a, financial approval 1160b, supplier approval/processing 1160c, LPO 1160d, purchase order creation 1160e, and completion 11600. As with the requisition workflow tool 1110 (FIG. 11B), each workflow/approval step status box may be invoked to activate a tool, corresponding to each workflow/approval step, to view the reason(s) underlying the workflow engine's invocation of that step. Other intervening or superseding steps may also be portrayed without departing from the scope of the present invention.

FIG. 11D illustrates an exemplary purchase order preview tool 1170 that corresponds to the purchase order preview step 1110e in accordance with the present invention. The purchase order preview tool 1170 permits the user to preview the purchase orders that will be generated from the current active cart 1140. The active cart 1140 corresponding to that user is queried and the preview purchase orders are displayed, as

shown, in alphabetical order according to supplier name. Other methods of ordering or retrieving the purchase orders corresponding to the user may also be used without departing from the scope of the present invention.

With reference to FIG. 2, the feature to invoke purchase/ 5 requisition orders may be hosted on the middleware/web methods servers 224 and managed by the eProcurement architecture of the present invention such that it is executed consistently with end user and supplier user business rules as described above. From a high-level point-of-view, this feature is implemented based on whether the order information sought to be processed by an end user is internal to the organization or supplier related. If the information is internal, it is processed accordingly via the end user 212, the middleware/web methods servers 224, through to the custom data- 15 base servers 222, and then to the hosted supplier products catalog 234; otherwise, the information is processed similarly except that the appropriate supplier related databases (e.g., the master product database 236, and the transaction database 238) may also be invoked.

An auto purchase order feature is available via the middleware/web methods servers 224 and is invoked via transaction processing modules executed on the transaction processing server 223, and can populate entries of a purchase order in accordance with applicable end user and supplier contractual 25 terms. The auto purchase order feature allows for the generation of distribution, and payment, rule-based purchase orders based on the customizations effectuated by a super user of the organization in the manner described above. For example, the feature can automatically insert legal terms (e.g., the right to 30 cure product defects, what constitutes rejection and/or revocation of an order, what may constitute a material defect, the seller's return policy, the buyer's acceptance policy, etc.), as well as other non-legal terms and conditions (e.g., preferred delivery dates, shipping and handling instructions, appropri- 35 ate contact/authorized personnel, payment and receipt of payment instructions, etc.), based on a contract that may be in place between an end user organization and a supplier. If no contract is in place, then the auto purchase order feature may prompt the user or automatically insert default terms and 40 conditions, whether legal or non-legal. The feature may create receipts for each end user initiated transaction/purchase order and add multiple transactions/purchase orders to a single receipt. For capable suppliers, automated responses can be accepted for display to the end user. Such automated 45 responses may include, for example, order acknowledgement and advanced shipping notice. Also, a document search subfeature allows searching any existing transactions/purchase orders. The auto purchase order feature also supports supplier pricing schemes modeled using the U.S. Dollar as well as all 50 other currency types (e.g., Euro, Yen, Pound, Peso, etc.).

FIG. 12 illustrates an exemplary workflow setup tool in accordance with the present invention. As shown, the workflow setup tool 1200 includes requisition workflow tool 1210, purchase order setup tool 1220, and fulfillment setup tool 55 1230. These tools are used to setup various aspects of the workflow process as described above. For example, as shown in FIG. 12, the purchase order setup tool 1220 may be used to designate the names of approvers to review and approve purchase orders for a particular organization. As shown, the 60 approver list may be customized for different departments (e.g., Math), types of products (e.g., non-catalog item), and even for specific users. Similarly, the requisition setup tool 1210 and fulfillment setup tool 1230 may be used to designate approvers for requests and fulfillment processes, respectively. 65 Other workflow parameters may be further defined without departing from the scope of the present invention.

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FIG. 13 illustrates an exemplary purchase order approval tool in accordance with the present invention. As shown, purchase order search engine 1310 searches through all of the purchase orders generated by the eProcurement system of the present invention for each of the hosted organizations. The results of the search may be filtered based on display criteria such as "Approver" (e.g., user responsible for approving the document), "Approval Queues," "All Pending Requisitions," "Urgent Approvals," "Unassigned Approvals," "Future Approvals," and "Manual Filter" options. The result list of the purchase orders are displayed in the display portion 1320 with such information as P.O. number, status of the P.O., priority level of the P.O., the date/time of the submission for approval, the name of the requester, the designated supplier, the amount, and selectable options. Using the purchase order approval tool, the approvers as well as the requisitioners may monitor the status of the requests and ascertain where the request is in the workflow process. Using the tools described above, the user may drill down to the lowest level of the 20 request to determine what needs to be done to move the request along if it becomes bottlenecked in the process, for example.

At the conclusion of the ordering process, an approval/rejection of orders feature may be implemented also through the middleware/web methods server 224, as well as the transaction processing server 223. The approve/reject order feature is invoked via a transaction processing module that is executed on the transaction processing servers 223. This feature can be managed by the middleware/web methods server 224 such that it is executed consistently with end user and supplier user business rules. For example, one advantage of this feature is its ability to provide notice of an approved or rejected order to an end user or super user.

FIG. 14 illustrates an exemplary history tool in accordance with the present invention. The eProcurement system in accordance with the present invention keeps a history of all requests, purchase orders, receipts, invoices, and actions (e.g., edits to parameters) made in the system that may be searched and reviewed. History tool 1400, for example, includes a tool to search for purchase order histories, purchase request histories, receipt histories, and invoice histories. The searches may be made by purchase order number, by requisition, by supplier/SKU numbers, by receipts, by invoices, and by contracts. These parameters may be filtered by dates, users, as well as other specifics of the history being sought.

Finally, a supplier configuration feature may be implemented. This feature allows for the capability to have a supplier master that hosts multiple fulfillment centers. Also, this feature allows for an order processing feature with multiple payment/currency methods for each fulfillment center, the execution of shipping and handling rules, and order distribution features. The order distribution features can include such features as facsimile or email confirmation, as well as other delivery methods, organized hierarchically to ensure purchase order delivery.

FIG. 15 is a block diagram of the electronic procurement system 20 communicating over a network 16 with suppliers 214-A (to 214-N) and purchasing organizations 212-A (to 212-N). The electronic procurement system 20 generally includes a supplier server application 1542 and purchaser server application 1550, which may interface with the access engine 21, contract engine 1554, search/catalog engine 22, requisition engine 23a, order/payment engine 23b, tracking engine 23c, and business rules engine 24.

As described, business rules describe and control the relationships between end users and suppliers based, in part, on

contractual terms or other arrangements, as processed according to the price and file management feature. For example, supplier user-side business rules may, for example, designate preferences regarding delivery terms (e.g., restrictions against odd lot sales, FOB preference, carrier preference, etc.), and price and insurance terms (e.g., CIF preference, applicable sales tax, etc.). Similarly, end user-side business rules may, for example, designate preferences regarding preferred suppliers, delivery terms (e.g., FOB preference, default quantity, carrier preference, etc.), and price and insurance terms (e.g., CIF preference, applicable sales tax, etc.). At least one advantage of implementing end user-side and supplier user-side business rules is the capability to be able to generate customized purchase orders, in accordance with contractual or default business rules.

Non-limiting examples of business rules include:

If the extended price of any line item exceeds the limit set in a users profile, route to the users financial approver.

If the total value of the requisition exceeds the limit set in a users profile, route to the users financial approver.

If a requisition sent to a user for financial approval exceeds the users approval authority set in the users profile, route the requisition to the users financial approver.

If the requisition contains suppliers classified by a users organization as "IT Vendors," send the requisition to the 25

Requisitions for the Math Department over \$10,000 are routed to the Vice Chancellor of Liberal Arts.

If any item on the PO is radioactive, route the PO to the environmental health and safety (EH&S) Department 30 for review and approval.

If any item on the PO is classified as hazardous, notify the EH&S Department. No approval is required.

If the account code for a line item on the requisition has a budget, and the requisition will exceed the budget, route 35 the requisition to the Budget Manager.

If the user adds a non-catalog item to their requisition, route it to the Purchasing Department to validate the information entered.

If a requisition is marked for expediting, skip all rules and 40 route directly to the Purchasing Department.

All the above examples of business rules are exemplary and not intended as limiting.

The supplier server application 1542 and purchaser server application 1550 may also interface with the transaction 45 engine 23, which may include the requisition module 23a, order/payment engine 23b, and the tracking engine 23c. Moreover, the supplier server application 1542 and purchaser server application 1550 may send and receive data from the data repository 30, which includes the user database 32, the 50 product index database 34, the product database 36, and the transaction database 38. The engines may communicate via function/method calls, file libraries, and database queries. The contract engine 1554 executes the necessary functions for implementing the contract management feature, which 55 manages and links new or existing procurement contracts, formed between buyer organizations and supplier organization, with a group. For example, a new or existing contract is initially stored in the contracts database 3200 (as described in FIG. 32) and may routinely be updated in accordance with 60 amendments (e.g., extensions, additions of agreed upon terms, assignments, or the like) or other contractual events (e.g., the expenditure of quantity/time/spending limits (i.e., tiers), price fluctuations—e.g., rebates or price reductions, item changes or additions, etc.); at such time intervals as 65 determined by the contract engine 1554, the group is updated accordingly. The group includes, for example, buyer users,

supplier users, the business rules engine 24, items, forms, purchase requisitions/orders, sales orders/invoices, and buyer invoices. Furthermore, the contract engine 1554 also supports contract searching (as described in FIG. 10) based on specific user-specified criteria like, for example, contract number, contract keyword, or supplier/catalog name.

The supplier server application 1542 communicates with a supplier 214-A (to (214-N) over network 16 and the purchaser server application 1550 communicates with a buyer 212-A (also referred to herein as a purchasing organization) over network 16. A supplier user would use a client application 1516-A (to 1516-N) to communicate with, generally, the electronic procurement provider 20 and, specifically, the supplier server application 1542. The client application 1516-A (to 1516-N) may be a web-browser 1518-A (to 1518-N) for the supplier user to use, or may be a standalone application. The web-browser 1518-A or standalone application may display features to manage catalog(s) 1512-A (to 1512-N) and manage sales 1514-A (to 1514-N), which may be communicated via the supplier server application 1542 and displayed to the supplier user. A buyer user would use a client application 1532-A (to 1532-N) to communicate with, generally, the electronic procurement provider 20 and, specifically, the purchaser server application 1550. The client application 1532-A (to 1532-N) may contain a web-browser 1538-A (to 1538-N) for the buyer user to use, or may be a standalone application. The web-browser 1538-A or standalone application may display features to manage purchasing 1533-A (to 1533-N), manage payment 1534-A (to 1534-N), manage users 1535-A (to 1535-N), manage privileges 1536-A (to 1536-N), and/or manage business rules 1537-A (to 1537-N), which may be communicated via the purchaser server application 1550 and displayed to a buyer user. For example, a user that sends a request to the system 20 that is outside the scope of that user's privileges would receive an appropriate denial response from the system 20 and, more specifically, for example, from the manage privileges 1536-A feature.

FIG. 16 is a block diagram of the buyer 212 communicating with the purchaser server application 1550, located at the electronic procurement provider 20, over a network 16. The purchaser server engine 1650 may interface with or include the following modules, or a subset thereof:

a catalog engine 1655 for managing each supplier catalog by implementing features for uploading catalog data, linking to the proper punch-out catalog(s) (1656) via the punch-out module 22a and back to the buyer, managing supplier showcase promotions and overlays (1657), converting supplier catalog data into a common data format (1658), and interfacing with the search engine 22 for searching the master product database or other accessible database of the electronic procurement system 20;

an organization database 1660 for storing organization specific information like, for example, business rules (1662), user-related data (1663), or permissions (1664);

a currency engine 1670 for implementing multi-currency features like, for example, normalizing a plurality of currency data (1671) into a default or preferred currency, interfacing with the search engine 22 to return item search results to a buyer user who sent a request to organize/filter the search results (1672) according to a specific currency, or determining the default or preferred currency with which a supplier requests or requires payment; or

a workflow management engine 1680 for managing the flow of purchase requisitions to the appropriate approver (via the requisition fulfillment engine 1686) (which may be prioritized via the prioritize receipt feature 1687).

based on user hierarchy, privileges, or business rules), sending the approved requisition back to the appropriate buyer user (via the requisition fulfillment engine 1686), interfacing with the search engine 22 to locate an appropriate requisition and/or purchase order (via the search PO/Invoice feature 1692), forwarding a purchase order to the appropriate supplier (via the requisition fulfillment engine 1686), forwarding a sales order and/or invoice from the supplier to the appropriate buyer user (via the order payment engine 1690 and using the PO/Invoice match feature 1691 for linking a purchase order on the buyer user side with an incoming invoice from the supplier), or sending event updates to the contract engine 1554 (via the contract management engine 1688)

Moreover, the workflow management engine 1680 may also interface with a purchasing engine 1681 that receives orders (via an order entry feature 1682), manage the items a buyer user places in a cart or moves/ assigns to a new cart (via a cart management feature 20 1683), present alternative items to a buyer in lieu of items chosen for requisitioning that are not available according to privileges, inventory or a contractual agreement (via an alternative item present feature 1684), or approve an order if approved by the appropriate 25 approver user (via an order approval feature 1685). In addition, the workflow management engine 1680 may also interface with a form management engine 1693 for receiving requisitions and orders via user-created custom forms stored in a forms database 2300. Once 30 received, the requisitions and orders are then routed to approvers and suppliers, respectively, according to workflow business rules. And, the workflow management engine 1680 also interfaces with the catalog management feature 1695 for retrieving item data related to 35 features for: the items present in the requisitions, orders, or invoices being processed by the workflow management engine

FIG. 17 is a block diagram of the supplier 214 communicating with the supplier server application 1542, located at the 40 electronic procurement provider 20, over a network 16. The supplier server engine 1750 may interface with or include the following modules, or a subset thereof:

a catalog engine 1755 for managing each supplier catalog by implementing features for uploading catalog data, 45 linking to the proper punch-out catalog(s) (1756) via the punch-out module 22a and back to the buyer, managing supplier showcase promotions and overlays (1757), converting supplier catalog data into a common data format (1758), and interfacing (1759) with the catalog management feature 1695 for updating the master product database or other accessible supplier-related database of the electronic procurement system 20;

an item database 1790 for storing item specific information like, for example, item description (1791), price and 55 quantity available (1792), restrictions (1793), or priorities (1794);

a supplier database 1775 for storing supplier specific information like, for example, detailed supplier data (1776), or supplier catalog data (1777); or

a sales management engine **1760** for managing the flow of sales orders and sales invoices from the appropriate buyer to the appropriate supplier (via the sale fulfillment engine **1770**) (which may be prioritized (via the prioritize customer feature **1771**) based on buyer/user hierarchy, privileges, or business rules), shipping (**1772**) and tracking (**1773**) the ordered item(s) to the appropriate

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buyer, interfacing with the search engine 22 to locate an appropriate purchase order and/or invoice (via the search PO/Invoice feature 1782), forwarding an invoice to the appropriate buyer (via the sale fulfillment engine 1770), receiving payment on an invoice from a buyer to the appropriate supplier (via the receive payment engine 1780 and using the PO/Invoice match feature 1781 for linking a sales order on the supplier user side with an outgoing invoice from the supplier), or sending event updates to the contract engine 1554 (via the contract management engine 1784).

Moreover, the sales management engine 1760 may also interface with a sales engine 1761 that receives sales orders (via an sale entry feature 1762), manage the items (e.g., goods and/or services) a buyer user requested via the sales order (via a goods management feature 1763), present alternative items to a buyer in lieu of items chosen for ordering that are not available according to inventory or business rules like a contractual agreement (via an alternative item present feature 1764), or approve a sales order if the item(s) is available and complies with business rules (via a sale approval feature 1765). In addition, the workflow management engine 1680 may also interface with a form management engine 1783 for receiving sales orders via user-created custom forms stored in a forms database 2300. Once received, the sales orders are then routed to the appropriate supplier user(s), respectively, according to workflow business rules. Then, the process of fulfilling the order is initiated and managed by the sales fulfillment engine 1770.

FIG. 18 is a block diagram of a supplier client 214. The client application 1516 may be a web-browser 1518 for the supplier user to use, or may be a standalone application. The web-browser 1518 or standalone application may display features for:

managing catalog(s) 1512;

managing sales 1514;

interfacing with the catalog database **1820** to, for example, input or view item restrictions **1821**, or to make catalog updates **1822**;

managing forms 1825 by, for example, customizing required forms 1826;

managing sales 1830 by, for example, entering sales data 1833, approving sales 1834, fulfilling sales orders 1835, and addressing disputes that may arise 1836; or

processing invoices and payments 1840 by, for example, sending invoices 1841, matching purchase orders to invoices 1842, or processing funds 1843.

FIG. 19 is a block diagram of a purchasing organization client 212. The client application 1532 may be a web-browser 1538 for the buyer user to use, or may be a standalone application. The web-browser 1538 or standalone application may display features to manage purchasing 1533, manage payment 1534, manage users 1535, manage privileges 1536, or manage business rules 1537. In addition, the web-browser 1538 or standalone application may also display features for: interfacing with the user database 1920 to, for example, access or define user privileges 1921;

managing a buyer organization's business rules 1925 to, for example, define preferred suppliers 1926, items 1927, or catalogs 1928;

managing workflows 1930 like, for example:

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the flow of purchase requisitions within the buyer organization.

access to catalogs **1932** as may be necessary (via a purchase engine **1931**) for forwarding a purchase requisition or order appropriately for approval,

order entry 1933, order approval 1934, order fulfillment 1935 (all via a purchase engine 1931), or

forwarding a sales order and/or invoice from the supplier to the appropriate buyer user (via the payment engine 1940 and using the PO/Invoice match feature 1942 for 5 linking a purchase order on the buyer user side with an incoming invoice from the supplier), processing payment on the order's invoice 1941 (via the payment engine 1940), or forwarding of a user-customized form in accordance with business rules.

FIG. 20 is a block diagram of a server system 2000. The server system 2000 generally includes one or more processing units (CPU's) 2002, one or more network or other communications interfaces 2004, memory 2010, and one or more $_{15}$ communication buses 2008 for interconnecting these components. The communication buses 2008 may include circuitry (sometimes called a chipset) that interconnects and controls communications between system components. The server system 2000 may optionally include a user interface, for 20 instance a display 2006 and an input device 2005. Memory 2010 may include high speed random access memory and may also include non-volatile memory, such as one or more magnetic disk storage devices. Memory 2010 may include mass storage that is remotely located from the central pro- 25 cessing unit(s) 2002. Memory 2010 includes high-speed random access memory, such as DRAM, SRAM, DDR RAM or other random access solid state memory devices; and may include non-volatile memory, such as one or more magnetic disk storage devices, optical disk storage devices, flash memory devices, or other non-volatile solid state storage devices.

In some embodiments, memory 2010 stores the following programs, modules and data structures, or a subset thereof:

- an operating system 2011 that includes procedures for handling various basic system services and for performing hardware dependent tasks;
- a network communication module 2012 that is used for connecting the server system 2000 to other computers 40 via the one or more communication network interfaces 2004 (wired or wireless) and one or more communication networks, such as the Internet, other wide area networks, local area networks, metropolitan area networks, and so on:
- a catalog module 2020 that provides information and prices about products in hosted supplier product catalogs;

databases 2032;

- a staging database 2034;
- a currency module 2040;
- a sales/purchase management module **2046**;
- a contract management module 2060;
- a database and management module 2070; and
- auxiliary services modules 2090.

The catalog module 2020 may include the following modules, or a subset thereof:

supplier catalog access module 2022 for providing suppliers with access to their respective hosted supplier product catalogs;

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a user local catalog create/access module 2024 for providing users (purchasing organizations) with local catalogs, in one embodiment generated by the respective users, from which the users can order products from suppliers who are not associated with hosted supplier product 65 following modules, or a subset thereof: catalogs. In one embodiment, a supplier in the local catalogs is a local service provider (e.g. catering or a

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limousine service) from which a user wants to order products and services using the electronic procurement system:

- a schema translate module 2026 for translating catalog data provided by suppliers or purchasing data provided by users into a common format associated with the electronic procurement system:
- a schema update module 2028 for updating data in the common format associated with the electronic procurement system in response to changes in the respective catalog data or purchasing data; and
- a supplier showcase module 2030 for promoting certain suppliers to users of a purchasing organization, which in an embodiment may be performed according to business

The databases 2032 may include all databases used by the system. These databases may in one embodiment be stored as logical partitions in a memory. These databases may in another embodiment be stored as tables in a larger database. These databases may in yet another embodiment be stored in separate memory or storage devices.

The staging database 2034 may comprise a catalog development environment (i.e., a staging area) for catalogs associated with suppliers. The data in the staging area may include complete catalogs, incomplete catalogs in development, partially uploaded catalogs, etc. A supplier can choose to make any or all portions of their respective catalog(s) in the staging database 'live' by syndicating the respective portions. A live catalog is one from which a user or purchasing organization may order items. The item database 2036, which may be a subset of the staging database 2034, contains descriptions, characteristics, price, pictures and other pertinent information for items listed in the catalogs.

The currency module 2040 may include the following modules, or a subset thereof:

- a normalize rates module 2042 for normalizing currency rates visible by a purchaser of goods and/or services, purchasing from suppliers using different currencies to that of the purchaser, or by a supplier of goods and services selling to purchasers using different currencies to the supplier; and
- a filter by currency module for allowing purchasers to filter suppliers according to currencies they do business in, or allowing suppliers to filter purchasers similarly.

The sales/purchase management module 2046 may include the following modules, or a subset thereof:

- a template management module 2048, for managing templates used by suppliers or purchasers of the system in placing orders for goods or services;
- a cost/markup management module 2050 for determining characteristics (e.g., average cost) of inventory and managing the inventory based on the characteristics and a markup rate:
- order receipt module 2052 for determining that an order has been received, and preparing to fulfill the order;
- sale fulfillment module 2054 for fulfilling the order, including invoicing and shipping goods to the purchaser;
- a receive payment module 2056 for receiving payment associated with an order (both for fulfilled and unfulfilled orders).

The contract management module 2060 may include the

order receipt module for 2062 for determining that an order has been received and matching the order to a contract;

sale fulfillment module 2064 for associating fulfillment of an order with a contract and verifying that the received order complies with the contract;

receive payment module **2066** for associating payments with a contract and verifying that appropriate discounts 5 and terms of the contract are reflected in the payment;

associate contract with forms module **2068** for associating the contract with forms used by a supplier or purchaser, such that terms of the contract apply to the form.

The database and management module **2070** may include 10 the following modules, or a subset thereof:

Access, update and manage database module 2072 for accessing, updating and managing databases in the system, including:

user (purchaser) and supplier module **2074**, for managing 15 user database **32** as described, which is accessed by a buyer user **12** or supplier user **14** through access module **21** as described;

workflow, catalog and forms module **2076**, for managing workflow database **3000**, catalog database **2400**, and 20 forms database **2300** as described;

master, transaction and contracts module **2078**, for managing master database **236**, transaction database **238** ad contracts database **3200** as described;

staging module **2080**, for managing staging database **3100** 25 as described:

invoice, purchase order, order, and requisition module 2082, for managing invoice databases 3300 and 3400, order database 2900 and 2500, requisition database 2700 as described.

The auxiliary services module may include additional features or services related to operation, management, security, authentication, maintenance or other aspects of the electronic procurement system.

FIG. 21 is a block diagram of a server system 2100. The 35 server system 2100 generally includes one or more processing units (CPU's) 2102, one or more network or other communications interfaces 2104, memory 2110, and one or more communication buses 2108 for interconnecting these components. The communication buses 2108 may include circuitry 40 (sometimes called a chipset) that interconnects and controls communications between system components. The system 2100 may optionally include a user interface, for instance a display 2106 and an input device 2105. Memory 2110 may include high speed random access memory and may also 45 include non-volatile memory, such as one or more magnetic, optical, or solid state disk storage devices. Memory 2110 may include mass storage that is remotely located from the central processing unit(s) 2102. Memory 2110 includes high-speed random access memory, such as DRAM, SRAM, DDR RAM 50 or other random access solid state memory devices; and may include non-volatile memory, such as one or more magnetic disk storage devices, optical disk storage devices, flash memory devices, or other non-volatile solid state storage

In some embodiments, memory 2110 stores the following programs, modules and data structures, or a subset thereof:

- an operating system 2111 that includes procedures for handling various basic system services and for performing hardware dependent tasks;
- a network communication module 2112 that is used for connecting the server 2000 to other computers via the one or more communication network interfaces 2004 (wired or wireless) and one or more communication networks, such as the Internet, other wide area networks, local area networks, metropolitan area networks, and so on:

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- a web browser 2118 or other tool for providing client access and visibility to the electronic procurement system, where in some embodiments some or all of the operations of the electronic procurement system are performed at a server, and in some embodiments some of the operations of the electronic procurement system are performed at the client;
- a catalog module 2120 that provides information and prices about products in hosted supplier product catalogs;

databases 2132;

a workflow module 2142;

a currency module 2154;

a contract management module 2160;

a database management module 2170; and

auxiliary services modules 2184.

The catalog module **2120** may include the following modules, or a subset thereof:

- a user local catalog create/access module 2122, in some embodiments similar to module 2024, for providing users (purchasing organizations) with local catalogs, in one embodiment generated by the respective users, from which the users can order products from suppliers who are not associated with hosted supplier product catalogs. In one embodiment, a supplier in the local catalogs is a local service provider (e.g. catering) from which a user wants to order products and services using the electronic procurement system;
- a supplier showcase module 2124, in some embodiments similar to module 2030, for promoting certain suppliers to users of a purchasing organization, which in an embodiment may be performed according to business rules;
- a Punch Out module **2126** for providing access to a catalog or website separate from the hosted supplier product catalogs, and allowing a purchaser to purchase an item from that catalog or website, and process the purchase through the electronic purchasing system;
- a present alternatives module 2128, for presenting alternative items to a prospective purchaser upon determining that an item requested by the purchaser cannot be fulfilled or that a better item might be available; and
- a purchaser priority module 2130 for prioritizing purchasers or purchaser orders associated with a user or purchasing organization.

The databases 2132 may include all databases used by the system, both on the server side and client side. These databases may in one embodiment be stored as logical partitions in a memory. These databases may in another embodiment be stored as tables in a larger database. These databases may in yet another embodiment be stored in separate memory or storage devices. The databases may include the following databases or modules, or a subset thereof:

business rules database 2134 for storing business rules associated with a user, purchasing organization or supplier, wherein in some embodiments the business rules may be set by a super-user or administrator associated with an organization;

- user privilege database 2136 for storing privileges associated with users, such as purchasing privileges, approval privileges, etc.;
- organization priority database 2138 for storing priority information associated with users or purchasing organizations in the electronic procurement system; and
- user created forms/search database 2140 for storing forms, search queries, etc associated with a user or purchasing organization, or associated with a supplier.

The workflow module 2142 may include the following modules, or a subset thereof:

cart management module **2144** for allowing a user or organization to manage a shopping cart associated with the purchase of items;

assign/move/schedule cart module **2146** for allowing a user or organization to assign a cart to another user, to move items from one cart to another (including a new) cart, and to schedule a cart for purchasing;

purchasing/checkout module **2148** for allowing a user to checkout one or more carts and purchase the items in the one or more carts;

order fulfillment module 2150 for verifying that an order has been received and processed for fulfillment, wherein in some embodiments this may be similar to sale fulfillment module 2054 for fulfilling the order; and

payment module/currencies 2152 for processing payment for an order, including converting currencies if necessary

The currency module **2154** may include the following modules, or a subset thereof:

- a normalize rates module 2156 (in some embodiments similar to module 2042) for normalizing currency rates visible by a purchaser of goods and/or services, purchasing from suppliers using different currencies to that of the purchaser, or by a supplier of goods and services selling to purchasers using different currencies to the supplier; and
- a filter by currency module **2158** (in some embodiments 30 similar to module **2044**) for allowing a purchasers to filter suppliers according to currencies they do business in, or allowing suppliers to filter purchasers similarly.

The contract management module **2160** may include the following modules, or a subset thereof:

- an order receipt module 2162 (in some embodiments similar to module 2062) for determining that an order has been received and matching the order to a contract;
- a sale fulfillment module **2164** (in some embodiments similar to module **2064**) for associating fulfillment of an 40 order with a contract and verifying that the received order complies with the contract;
- a receive payment module 2166 (in some embodiments similar to module 2066) for associating payments with a contract and verifying that appropriate discounts and 45 terms of the contract are reflected in the payment; and
- an associate contract with forms module 2168 (in some embodiments similar to module 2068) for associating the contract with forms used by a supplier or purchaser, such that terms of the contract apply to the form.

The database management module **2170** may include the following modules, or a subset thereof:

Access, update and manage database module 2172 (in some embodiments similar to module 2072) for accessing, updating and managing databases in the system, including: 55 user (purchaser) and supplier module 2174 for managing user database 32 as described, which is accessed by a buyer user 12 or supplier user 14 through access module 21 as described;

workflow, catalog and forms module **2176** for managing 60 workflow database **3000**, catalog database **2400**, and forms database **2300** as described;

master, transaction and contracts module 2178 for managing master database 236, transaction database 238 ad contracts database 3200 as described;

staging module 2080 for managing staging database 3100 as described; and

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an invoice, purchase order, order, requisition module 2182 for managing invoice databases 3300 and 3400, order database 2900 and 2500, requisition database 2700 as described.

The auxiliary services modules **2184** (in some embodiments similar to module **2090**) may include additional features or services related to operation, management, security, authentication, maintenance or other aspects of the electronic procurement system.

FIG. 22 shows a top level data structure 2200 at an electronic procurement provider server. The data structure includes data repository 230, end user database 232, hosted supplier product index 234, master product database 236, and transaction database 238. The end user database 232 may in an embodiment include user/security database 3500. The hosted product index 234 may in an embodiment include summary search database 2460. The data structure further includes staging database 3100, and scheduler database 3600.

The master database is associated with (and may in some embodiments include one or more of) a forms database 2300 and a catalog database 2400, which in an embodiment includes items database 2401 and prices database 2430.

The transaction database is associated with (and may in some embodiments include one or more of) buyer invoice database 3300, sales invoice database 3400, requisition database 2700, receipt database 2800, sales order database 2900, workflow database 3000, contracts database 3200, and purchase order database 2500. The purchase order database 2500 may in an embodiment include the fax database 2600, revisions database 2602, and distribution database 2604.

FIG. 23 shows a database diagram 2300 including the master database 236, with master database index 237 indexing into the master database. Master database index 237 includes summary search database 2460.

In an embodiment, forms database 2300 includes one or more of:

Form Config Section Title Help 2301, in some embodiments help information for configuring a form section title:

Form Config Group Title Help **2302**, in some embodiments help information for configuring a form group title;

Form Config Element Title Help 2303, in some embodiments help information for configuring a form element; Form List 2304, in some embodiments a list of forms;

Form Config Section 2305, in some embodiments configuration of a form section;

Form Config Group **2306**, in some embodiments configuration of a form group;

Form List Value 2307;

Form Config Element 2308, in some embodiments configuration of a form element;

Form Config Version 2309, in some embodiments configuration of a form version;

Form User Defined Fields 2310, in some embodiments user defined fields in a form;

Form User Defined Field Config Parameters 2311, in some embodiments parameters for configuring user defined fields in a form:

Form List Value Title Help 2312;

Form 2313;

Form Audit Trail 2314, in some embodiments a list of changes to a form for auditing purposes;

Forms User Defined Field Data 2315;

Forms Up Dist Method **2316**, in some embodiments forms update distribution method details; and

Forms Up Dist Method Data 2317, in some embodiments forms update distribution method data.

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FIG. 24 shows a database diagram 2400 including the master database 236, with master database index 237 indexing into the master database. Master database index 237 includes summary search database 2460.

As described, the search architecture is based upon an 5 indexed, tokenized-type implementation. This search architecture may include a search engine and a tokenization feature, both of which are invoked via processing modules executed on the custom database servers. Product elements such as the product name, industry, price, and availability, 10 among others, are primarily used to generate a product search index (e.g., a token). The process of generating a product search index/token is called "tokenization" and may be executed by a tokenization feature invoked via a processing module. The indices/tokens generated as a result of the tokenization feature, which relate to various products of a multitude of suppliers, may be stored within and executed on the hosted supplier products catalog. Searching is actually executed against what are termed as "verticals." A vertical is designed similar to a drill-down menu architecture that con- 20 sists of root nodes and leaf nodes, which are children of their respective roots.

The forms database 2300, and catalog database 2400 are associated with the master database. The catalog database includes items database 2401 and price database 2430.

In an embodiment, items database 2401 includes one or more of the following:

Item Attribute Attr Value 2402, in some embodiments a value for an item attribute;

Item Attribute Valid Values **2404**, in some embodiments 30 valid values value for an item attribute;

Item Attribute Audit Trail **2406**, in some embodiments a list of changes to an item attribute for auditing purposes; Item Attribute Definition **2408**;

Item Attribute Data **2410**;

Item 2412:

Chem Structure **2414**, in some embodiments a description of a chemical structure that may be ordered through the procurement system;

Chem Structure Supplier **2416**, in some embodiments a 40 supplier of a chemical structure;

Item Chemical **2418**, in some embodiments a commercial item of a chemical structure, e.g., a container of a certain chemical structure.

Supplier 2420;

Item Image Description 2422, in some embodiments a description of an image or picture associated with an item:

Item Image File Data **2424**, in some embodiments an image data file (e.g., a JPEG image or GIF image, as 50 commonly used in web applications);

Item Inventory Config **2426**, in some embodiments data for configuring inventory of an item; and

Item Inventory Config Audit Trail **2428**, in some embodiments a list of changes to data for configuring inventory 55 of an item.

In an embodiment price database **2430** includes one or more of the following:

Item **2432**, in some embodiments an item for which a price is stored in the price database;

Supplier **2434**, in some embodiments a supplier associated with the item;

Item Attribute Audit Trail **2436**, in some embodiments a list of changes to an attribute associated with an item, for which a price is stored in the price database;

Price Set Org Details **2438**, in some embodiments details of an organization price;

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Price Set **2440**, in some embodiments a price for the item; Price Version Approval **2442**, in some embodiments approval for a version of a price associated with the item;

Price Version **2444**, in some embodiments a version of a price associated with the item;

Price Set Version 2446;

Price **2448**, in some embodiments a price for the item; Submission Price Component **2450**;

Price Version Loading Submission 2452;

Submission Audit Trail **2454**, in some embodiments for auditing submissions; and

Submission 2456.

In an embodiment summary search database **2460** includes one or more of the following:

Supplier Price Date **2402**, in some embodiments a date associated with a supplier price;

Supplier Content Date **2404**, in some embodiments a date associated with supplier content (e.g., description);

Organization 2406;

Supplier **2408**, in some embodiments a supplier of an item; Searchable Verticals By Rule **2470**, in some embodiments supporting rule-based searching;

Product Rule **2472**, in some embodiments a rule related to a product;

Product Vertical **2474**, in some embodiments supporting product-based searching;

Org Supplier Item Counts **2476**, in some embodiments a count of items stored at an organization supplier;

Product Category **2478**, in some embodiments a category related to a product;

Supplier Category Summary **2480**, in some embodiments a summary of a supplier category;

Item Incr Indexing Queue 2482, in some embodiments a queue for incrementally indexing items;

Org Favorites Full Indexing Queue **2484**, in some embodiments a full-indexing queue for organizational favorites; and

Org Favorites Incr Indexing Queue **2486**, in some embodiments an incremental-indexing queue for organizational favorites.

FIG. 25 shows a database diagram 2500 including the transaction database 228, with transaction database index 229 indexing into the transaction database 228. Transaction database 228 is associated with (and in some embodiments includes one or more of) the following databases:

Purchase Order (PO) DB **2500**, in some embodiments a database of purchase orders;

Fax DB **2600**, in some embodiments a database of faxes; Distribution DB **2602**, in some embodiments for storing order distributions, where the order distribution features can include such features as facsimile or email confirmation, as well as other delivery methods, organized hierarchically to ensure purchase order delivery, as described;

Revisions DB 2604, in some embodiments for storing revisions to sales or purchase documents;

Buyer Invoice DB **3300**, in some embodiments for storing buyer invoices;

Seller Invoice DB **3400**, in some embodiments for storing seller invoices;

Requisition DB 2700, in some embodiments for storing purchase requisitions;

Receipt DB 2800, in some embodiments for storing receipts:

Sales Order DB **2900**, in some embodiments for storing sales orders;

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Workflow DB **3000**, in some embodiments for storing workflow data relating to sales, purchases and transactions, etc.: and

Contracts DB 3200, in some embodiments for storing contracts.

In an embodiment, Purchase Order (PO) DB **2500** includes one or more of:

- Config Section Title Help **2502**, in some embodiments help information for configuring a section title;
- PO Config Group Title Help **2504**, in some embodiments help information for configuring a purchase order group title:
- PO Config Element Validation **2506**, in some embodiments validation information for configuring a purchase order element:
- PO Audit Trail **2508**, in some embodiments a purchase order audit trail;
- PO WF Activity History **2510**, in some embodiments a purchase order workflow activity history;
- PO Config Group **2512**, in some embodiments configuration of a purchase order group;
- PO Config Section **2514**, in some embodiments configuration of a purchase order section;
- PO Config Element **2516**, in some embodiments configuation of a purchase order element;
- PO Config Version **2518**, in some embodiments configuration of a purchase order version;
- PO Config **2520**, in some embodiments configuration of a purchase order;
- PO Summary 2522, in some embodiments a purchase order summary;
- PO Dist Method Data **2524**, in some embodiments data for a purchase order distribution method;
- PO Dist Method **2526**, in some embodiments a purchase 35 order distribution method;
- PO 2528, in some embodiments a purchase order;
- PO Currency Exchange Rates 2530; Supplier 2532;

Fulfillment Center 2534;

- PO User Selected Approver **2536**, in some embodiments a user-selected approver for a purchase order;
- PO Pending Actions **2538**, in some embodiments pending actions relating to a purchase order;
- PO PO Clauses **2540**, in some embodiments clauses relating to a purchase order;
- PO Line Search **2542**, in some embodiments line search details relating to a purchase order;
- PO Line **2544**, in some embodiments a line of a purchase order;
- Req Line Address **2546**, in some embodiments an address line relating to a purchase requisition;
- PO Line Product **2548**, in some embodiments a product line relating to a purchase order;
- PO Credit Card **2550**, in some embodiments a credit card 55 associated with a purchase order;
- PO Line Report **2552**, in some embodiments a report line relating to a purchase order;
- PO CF Value Set Values **2556**, in some embodiments to set the value of a custom field value in a purchase order;
- PO CF Value Set Ctxt 2558, in some embodiments to set the context of a custom field value in a purchase order;
- PO CF Value Set Def **2560**, in some embodiments to set the definition of a custom field value in a purchase order; and
- PO User Selected Approver **2562**, in some embodiments a user-selected approver of the purchase order.

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FIG. 26 shows a database diagram 2600 including the transaction database 228, with transaction database index 229 indexing into the transaction database. The fax database 2600, distribution database 2602 and revisions database 2604 are associated with the transactions database 228.

In an embodiment, the fax database 2600, distribution database 2602 and revisions database 2604 include one or more of:

- PO Fax Config Section **2610**, in some embodiments configuration of a purchase order fax section;
- PO Fax Config Group **2612**, in some embodiments configuration of a purchase order fax group;
- PO Fax Config Element **2614**, in some embodiments configuration of a purchase order fax element;
- PO Fax Config **2616**, in some embodiments configuration of a purchase order fax;
- PO Fax Config Version 2618, in some embodiments configuration version of a purchase order fax;
- PO Revision Document Relationship **2620**, in some embodiments a document relationship of a purchase order revision
- PO Revision **2622**, in some embodiments a purchase order revision:
- PO Dist Request **2624**, in some embodiments a purchase order distribution request;
- PO Dist Entry Data **2626**, in some embodiments purchase order entry data;
- PO Revision Document **2628**, in some embodiments a purchase order document revision:
- PO Dist Entry **2630**, in some embodiments entry of a purchase order distribution;
- PO Dist Failure **2632**, in some embodiments failure of a purchase order distribution;
- PO Dist Service Lock **2634**, in some embodiments locking of a purchase order distribution service; and
- PO Dist Service Instance **2636**, in some embodiments an instance of a purchase order distribution service.
- FIG. 27 shows a database diagram 2700 including the transaction database 228, and requisition database 2700 associated with the transaction database.

In an embodiment, requisition database 2700 includes one or more of:

- Req Config Section Title Help 2702, in some embodiments help information for configuring a purchase requisition section title:
- Req Config Group Title Help **2704**, in some embodiments help information for configuring a purchase requisition group title;
- Req Config Element Validation **2706**, in some embodiments help information for configuring a purchase requisition element validation;
- Req Config Section 2708, in some embodiments configuration of a purchase requisition section;
- Req Config Group **2710**, in some embodiments configuration of a purchase requisition group;
- Req Config Element 2712, in some embodiments configuration of a purchase requisition section element;
- Req Config **2714**, in some embodiments configuration of a purchase requisition;
- Req Config Version 2716, in some embodiments configuration of a purchase requisition version;
- Req File Data **2718**, in some embodiments purchase requisition file data;
- Req Currency Exchange Rates 2720, in some embodiments purchase requisition currency exchange rates;
- Req Sup Dist Method Data 2722, in some embodiments data for a purchase requisition distribution method;

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Req Sup Dist Method 2724, in some embodiments a purchase requisition distribution method;

Req WF Activity History 2726, in some embodiments purchase requisition workflow activity history;

Req Audit Trail 2728, in some embodiments changes to a 5 purchase requisition for auditing purposes;

Req Summary 2730, in some embodiments a summary of a purchase requisition;

Requisition 2732;

Req WF Activity Buffer 2734, in some embodiments a 10 purchase requisition workflow activity buffer;

Req User Selected Approver 2736, in some embodiments a purchase requisition user-selected approver;

Supplier 2738;

Fulfillment Center 2740, in some embodiments a fulfill- 15 ment center for a purchase requisition;

Req Supplier Group 2742, in some embodiments a supplier group for a purchase requisition;

Req Punchout Session 2744, in some embodiments a punchout session for a purchase requisition:

Req CF Value Set Def 2746, in some embodiments for setting a definition of a purchase requisition custom field

Req CF Value Set Ctxt 2748, in some embodiments for setting a context of a purchase requisition custom field 25

Req CF Value Set Values 2750, in some embodiments for setting a value of a purchase requisition custom field

Contract 2752;

Req Line Address 2756, in some embodiments an address line for a purchase requisition;

Req Line Address Field 2758, in some embodiments an address field line for a purchase requisition;

Req Line 2760, in some embodiments a line for a purchase 35 requisition:

Req Line Product 2762, in some embodiments a product line for a purchase requisition;

Req Credit Card 2764, in some embodiments a credit card for a purchase requisition;

Req Line Report 2766, in some embodiments a report line for a purchase requisition;

Req Line Search 2768; in some embodiments a search line for a purchase requisition; and

Req File Description 2770, in some embodiments a file 45 description for a purchase requisition.

FIG. 28 shows a database diagram 2800 including the transaction database 228, and receipt database 2800 associated with the transaction database.

In an embodiment, receipt database 2800 includes one or 50 more of:

Supplier 2802, in some embodiments a supplier for a receipt;

Receipt 2804;

Receipt Currency Exch Rates 2806, in some embodiments 55 currency exchange rates associated with a receipt;

Receipt PO Relship 2808, in some embodiments a relationship between a purchase order and a receipt;

Receipt Summary 2810, in some embodiments a summary of a receipt;

Req Line Address 2812, in some embodiments an address line for a purchase requisition;

Receipt Line 2814;

General Product 2816; and

Receipt Line Inventory Replenishment 2818, in some 65 embodiments an inventory replenishment line for a receipt.

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FIG. 29 shows a database diagram 2900 including the transaction database 228, and sales order database 2900 associated with the transaction database.

In some embodiments, the transaction database 228 and sales order database 2900 are accessed by transaction processing servers 223 and middleware/web methods servers 224.

In an embodiment, sales order database 2900 includes one or more of:

Order Config Section Title Help 2901, in some embodiments help information for configuring a sales order section title;

Order Config Group Title Help 2902, in some embodiments help information for configuring a sales order group title;

Order Config Element Validation 2903, in some embodiments validation for configuring a sales order element; Order File Description 2904;

Order File Data 2905;

Order Config Group 2906, in some embodiments configuration of a sales order group;

Order Config Section 2907, in some embodiments configuration of a sales order section;

Order Config Element 2908, in some embodiments configuration of a sales order element;

Order Config Version 2909, in some embodiments configuration of a sales order version;

Order Config 2910;

Order Summary 2911;

Order PO Clause 2912, in some embodiments a purchase order clause;

Order Audit Trail 2913, in some embodiments changes for auditing a sales order;

Order 2914;

Order WF Activity History 2915, in some workflow activity history for a sales order;

Order CF Value Set Values 2916, in some embodiments values for a sales order custom field;

Order CF Value Set Ctxt 2917, in some embodiments context for a sales order custom field;

Order CF Value Set Def 2918, in some embodiments definition for a sales order custom field;

Order Ext CF Values 2919;

Order Line Search 2920, in some embodiments a search line for a sales order;

Order Line 2921:

Order Shipment 2922, in some embodiments a shipment for a sales order;

Order Line Product 2923, in some embodiments a product for a sales order;

Order Credit Card 2924, in some embodiments a credit card for a sales order; and

Order Shipment Line 2925, in some embodiments a shipment line for a sales order.

FIG. 30 shows a database diagram 3000 including the transaction database 228, and workflow database 3000 associated with the transaction database. In some embodiments, the transaction database 228 and workflow database 3000 are accessed by transaction processing servers 223 and middleware/web methods servers 224.

As described, supplier users can access the catalog via the middleware/web methods servers 224, which then forward the supplier access request to the custom database servers 222 and processing modules for execution, in order, for example, to update their own supplier data. End users may be able to search multiple suppliers within the catalog via the end user interface 212, subject to access rules set by the super user. End

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users may search the catalog for specific end user product requirements via the middleware/web methods servers 224, which forward the end user search request to custom database servers 222 and processing modules for execution. Subsequently, the end user may then invoke requisition and purchase orders via the middleware/web methods servers 224, which forward the end user order to the transaction processing servers 223 for execution.

In an embodiment, workflow database 3000 includes one or more of:

Workflow Step 3002;

Workflow Step Attr Value 3004, in some embodiments an attribute value for a workflow step;

Workflow Process Definition 3006;

Workflow Activity Attr Value 3008, in some embodiments an attribute value for a workflow activity;

Workflow Activity Relship 3010, in some embodiments an relationship for a workflow activity;

Workflow Activity 3012;

Workflow Folder Selection Rule **3014**, in some embodiments a selection rule for a workflow folder;

Workflow Activity Instance 3016, in some embodiments an instance of workflow activity;

Workflow Folder Membership **3018**, in some embodi- 25 ments membership of a workflow folder;

Workflow Folder 3020;

Workflow Folder Activity Instance 3022, in some embodiments an activity instance for a workflow folder;

Users 3024;

Workflow Folder Robot Relship 3026;

Workflow Folder Entry 3028;

Workflow Robot 3030;

Workflow Robot Attr Value 3032;

Workflow Dynamic Rule Group **3034**, in some embodiments an dynamic rule group associated with the workflow;

Workflow Dynamic Rule Group Audit Trail 3036, in some embodiments an audit trail for a dynamic rule group associated with the workflow;

Workflow Dynamic Rule 3038;

Workflow Dynamic Rule Element **3040**, in some embodiments an element of a dynamic rule associated with the workflow; and

Workflow Dynamic Rule Audit Trail **3042**, in some 45 embodiments an audit trail for a dynamic rule associated with the workflow.

FIG. 31 shows a database diagram 3100 including the staging database 3100, and staging catalog database 3101, associated with the staging database 3100.

In an embodiment, the staging catalog database 3101 includes one or more of a staging items database 3102, a staging price database 3131, and a summary search database 3130.

In an embodiment, staging items database 3102 includes 55 one or more of:

Item Attribute Attr Value 3103, in some embodiments a value for an item attribute;

Item Attribute Valid Values **3104**, in some embodiments a set of valid values for an item attribute;

Item Attribute Audit Trail **3105**, in some embodiments an audit trail for an item attribute;

Item Attribute Definition **3106**, in some embodiments a definition for an item attribute;

Item Attribute Data 3107, in some embodiments data for an 65 item attribute;

Item 3108;

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Chem Structure **3109**, in some embodiments a description of a chemical structure that may be ordered through the procurement system;

Chem Structure Supplier **3110**, in some embodiments a supplier of a chemical structure;

Item Chemical **3111** in some embodiments a commercial item of a chemical structure e.g., a container of a certain chemical structure;

Supplier 3112;

Item Image Description 3113, in some embodiments a description of an image or picture associated with an item:

Item Image File Data **3114**, in some embodiments an image data file (e.g., a JPEG image or GIF image, as commonly used in web applications);

Item Inventory Config 3115, in some embodiments data for configuring inventory of an item; and

Item Inventory Config Audi Trail **3116**, in some embodiments a list of changes to data or an audit trail for configuring inventory of an item.

In an embodiment, staging price database 3131 includes one or more of:

Items 3132;

Supplier 3133;

Item Attribute Audit Trail **3134**, in some embodiments a list of changes to data or an audit trail for an item attribute;

Price Set Org Details **3135**, in some embodiments details of a price setting organization;

Price Set 3136, in some embodiments a set price;

Price Version Approval **3137**, in some embodiments approval for a price version;

Price Version 3138;

Price Set Version 3139;

Price 3140;

Submission Price Component 3141;

Price Version Loading Submission 3142;

Submission Audit Trail **3143**, in some embodiments a list of changes to data or an audit trail for a submission; and Submission **3144**.

In an embodiment, summary search database 3130 includes one or more of:

Supplier Price Date 3117, in some embodiments a data associated with a supplier price;

Supplier Content Date 3118;

Organization 3119;

Supplier 3120;

Searchable Verticals by Rule 3121, in some embodiments supporting rule-based searching;

Product Rule **3122**, in some embodiments a rule related to a product;

Product Vertical **3123**, in some embodiments supporting product-based searching;

Org Supplier Item Counts 3124, in some embodiments a count of items stored at an organization supplier;

Product Category 3125, in some embodiments a category related to a product;

Supplier Category Summary **3126**, in some embodiments a summary of a supplier category;

Item Incr Indexing Queue 3127, in some embodiments a queue for incrementally indexing items;

Org Favorites Full Indexing Queue 3128, in some embodiments a full-indexing queue for organizational favorites; and

Org Favorites Incr Indexing Queue 3129, in some embodiments an incremental-indexing queue for organizational favorites.

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FIG. 32 shows a database diagram 3200 including the transaction database 228, PO database 2500, buyer invoice database 3300, seller invoice database 3400, requisition database 2700, receipt database 2800, sales order database 2900, workflow database 3000, and contracts database 3200, associated with the transaction database 228.

In an embodiment, the contracts database 3200 includes one or more of:

Supplier 3201;

Form Configuration 3202;

Contract Type 3203;

Contract Form Relationship **3204**, in some embodiments an relationship between a contract and a form;

Contract Scheduler Relationship **3205**, in some embodiments an relationship between a contract and a sched- 15 uler;

Contract Owner Relationship **3206**, in some embodiments an relationship between a contract and an owner;

Contract Department Relationship **3207**, in some embodiments an relationship between a contract and a departace ment:

Contract Fulfillment Center Relationship **3208**, in some embodiments an relationship between a contract and a fulfillment center:

Contract Audi Trail **3209**, in some embodiments a list of 25 changes to data or an audit trail for a contract;

Contract Tier Info **3210**, in some embodiments tier information for a contract;

Contract Budget Actual **3211**, in some embodiments an actual budget for a contract;

User 3212; and

Department 3213.

FIG. 33 shows a database diagram 3300 including the transaction database 228, PO database 2500, buyer invoice database 3300, seller invoice database 3400, requisition database 2700, receipt database 2800, sales order database 2900, workflow database 3000, and contracts database 3200, associated with the transaction database 228.

In an embodiment, the buyer invoice database 3300 includes one or more of:

Invoice Configuration Section Title Help **3301**, in some embodiments help information for configuring an invoice section title;

Invoice Configuration Section 3202, in some embodiments configuration of a invoice section;

Invoice Configuration 3203;

Invoice Configuration Group Title Help **3304**, in some embodiments help information for configuring an invoice group title;

Invoice Configuration Group **3305**, in some embodiments 50 configuration of an invoice group;

Invoice Configuration Element Validation 3306;

Invoice Configuration Element **3307**, in some embodiments configuration of an invoice element;

Invoice Configuration 3308;

Invoice Configuration Version 3309;

Active Invoice Configuration Version 3310;

User Selected Approver 3311;

Currency Exchange Rates 3312;

Invoice Audit Trail **3313**, in some embodiments a list of 60 changes (audit trail) to an item attribute for auditing purposes;

Invoice Summary 3314;

Invoice 3315;

Workflow Activity History 3316;

Supplier 3317;

Invoice Line 3318;

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Remit to Address 3319;

Pending Actions **3320**, in some embodiments pending actions relating to an invoice;

Contract 3321:

PO **3322**, in some embodiments a purchase order;

PO Line **3323**, in some embodiments a purchase order line; Invoice Line Product **3324**, some embodiments a product line relating to an invoice;

Invoice CF Value Set Def 3325, in some embodiments to set the definition of a custom field value in an invoice;

Invoice CF Value Set Ctxt 3326, in some embodiments to set the context of a custom field value in an invoice; and Invoice CF Value Set Value 3327, in some embodiments to set the value of a custom field value in an invoice.

FIG. 34 shows a database diagram 3400 including the transaction database 228, PO database 2500, buyer invoice database 3300, seller invoice database 3400, requisition database 2700, receipt database 2800, sales order database 2900, workflow database 3000, and contracts database 3200, associated with the transaction database 228.

In an embodiment, the seller invoice database 3400 includes one or more of:

Invoice Configuration Section Title Help **3401**, in some embodiments help information for configuring an invoice section title:

Invoice Configuration Group Title Help **3402**, in some embodiments help information for configuring an invoice group title:

Invoice Configure Element Validation 3403;

Invoice Configuration Section 3404, in some embodiments configuration of an invoice section;

Invoice Configuration Group **3405**, in some embodiments configuration of an invoice group;

Invoice Configuration Element **3406**, in some embodiments configuration of an invoice element;

Invoice Configuration **3407**, in some embodiments configuration of an invoice;

Invoice Configuration Version 3409, in some embodiments configuration version of an invoice;

Active Invoice Configuration Version **3410**, in some embodiments configuration of an active invoice; Supplier **3411**;

Currency Exchange Rates **3412**, in some embodiments currency exchange rates associated with an invoice; Invoice **3413**:

User Default Remit To Address **3414**, in some embodiments a default remit-to address for a user associated with an invoice;

Invoice Line 3415;

Remit To Address **3416**, in some embodiments a remit-to address associated with an invoice;

Invoice Line Product 3417; and

User 3418.

FIG. 35 shows a database diagram 3500 including the end user database 232, associated with the user/security database 3500. In an embodiment, the user/security database 3500 includes one or more of:

User Info **3501**, in some embodiments information relating to a user:

User Permission Index **3502**, in some embodiments an index of permissions relating to a user;

User Audit Trail 3503, in some embodiments a list of changes (audit trail) for a user for auditing purposes;

Users 3504;

User Attribute Value **3505**, in some embodiments the value of an attribute associated with a user;

User Role Membership **3506**, in some embodiments membership associated with a user role;

Organization 3507;

Organization Attribute Value **3508**, in some embodiments a value of an attribute associated with an organization; Department **3509**:

Position Department Relationship **3510**, in some embodiments a relationship between a position and a department:

Position Department Role Relationship **3511**, in some 10 embodiments a relationship between a position and a department role;

Position 3512;

Role Attribute Value 3513, in some embodiments the value of an attribute associated with a role;

Role 3514; and

Role Audit Trail 3515, in some embodiments a list of changes (audit trail) for a role for auditing purposes.

FIG. 36 shows a database diagram 3600 including the scheduler database 3600. In an embodiment, the scheduler 20 database 3600 includes one or more of:

Job Input Data **3601**, in some embodiments data relating to a job input;

Job Description **3602**, in some embodiments a description relating to a job;

Job Execution Instance **3603**, in some embodiments an execution instance relating to a job;

Job Input 3604;

Job Output 3605;

Trigger 3606;

Filed Description 3607;

Job Output Data **3608**, in some embodiments data relating to a job output;

File Data 3609;

Instance 3610; and

Lock 3611.

FIG. 37 is a block diagram of a server system 3700. The system 3700 comprises an electronic procurement (eProcurement) server 3720, located at an eProcurement provider 20 as previously described. The server 3720 is coupled, either 40 locally or remotely, to a database/storage 3760 that hosts a plurality of databases. These stored databases can include one or more of a catalog database 2400, a staging database 3100, a buyer/end user database 232, permissions 3734, a business rules database 3756, requirements 3732, quotas 3750, and 45 other databases as described. In some embodiments, the catalog database 2400 can correspond to a master product database 236 as described earlier.

In some embodiments, the server **3720** can include one or more of a web server **225**, a middleware/methods server **224**, 50 a transaction processing server **223**, a custom database server **222**, and an end user processing servers **221**, as described earlier

In some embodiments, the electronic procurement system includes a plurality of purchasing organizations, each having 55 at least one user (e.g., users 3702, 3703, 3705) with permissions 3734 associated with the at least one user. In some embodiments, the permissions are determined in accordance with business rules 3756. In some embodiments, the business rules are associated with at least one of supplier requirements, 60 purchaser requirements, and governmental requirements 3732. In some embodiments, the permissions are determined by a super-user as described earlier, e.g., super-user 3704.

In some embodiments, the permissions **3734** associated with the user **3702** determine the user's ability to purchase 65 from the catalogs **2400** associated with suppliers, and also to purchase non-catalog items. The permissions define a par-

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ticular user's ability to purchase items based on such criteria as the amount (e.g., dollar limit or number of purchases), type (e.g., lab/office supplies only or electronic/consumer/personal items also), and priority of items (e.g., speed of fulfillment) the user can purchase.

FIG. 37 shows a first user 3702, a second user 3703 and a third user 3705, who access the server system through an internet connection, which in one embodiment is a web connection 3755.

Business rules 3756 are associated with the plurality of users (users 3702, 3703 and 3705). The business rules associated with each respective user may be different. In some embodiments, these business rules determine user permissions 3734 as described, workflow steps and operations, order submission, order approval, and order payment, etc.

Catalog items from catalog database 2400, and also noncatalog items, are displayed to a respective user in accordance with the respective business rules associated with the respective user. If a business rule prohibits a user from viewing a certain item, category, or supplier, then the respective item, category or supplier will not be displayed to that user, even if other users with appropriate permissions may see it.

Throughout this application, "displaying" means at least that the server sends data for display to a client associated with the user. Prior to display, the data for display may be formatted by the server prior to sending to the client associated with the user, or may be formatted by the client after receiving the data, or may include a combination of these operations.

A first item 3761, a second item 3762, and a third item 3764 are displayed to respective users 3702, 3703 and 3705 in accordance with the business rules 3756 and permissions 3734. The users submit respective purchase requests 3766, 3768, and 3770 to purchase the respective items.

Following a purchase request, a purchase approval is determined 3714 (in some embodiments as an individual operation per item, or by group of items) for the catalog items displayed to the users and selected by the users for purchasing. In some embodiments, the purchase approval can be performed when a user submits a request to purchase the item (respective purchase requests 3766, 3768 and 3770), or later (e.g., when a purchase request is routed to an approving party for approval). The permissions 3734 associated with a user may determine a purchasing amount that a user may purchase before approvals are required (e.g., purchase up to \$25 without approval) as an individual transaction or an aggregate transaction over time (e.g., \$100 total purchases per month).

A purchase order is generated (in some embodiments, following a purchase approval) 3718, 3722, 3723 respectively for the purchase requisitions 3766, 3768, 3770 respectively. Suppliers 3724, 3726, 3727 may be associated with the purchase orders 3718, 3722, 3723 respectively.

The purchase orders may be combined into a large purchaser order or maintained separately, according to business rules. As an example, if the users 3702, 3703, 3705 are at the same purchasing organization, and the items for purchase all come from one supplier, then in some embodiments it would be appropriate to have one purchase order for all three items ordered. In some embodiments, government and supplier requirements 3732 determine if some items (e.g., special items such as radioactive materials, toxins, biohazards, select agents) must have their own separate purchase requisitions and/or purchase orders

In some embodiments, the purchases may be scheduled **3728**, in accordance with scheduling rules **3730**.

In some embodiments, the business rules are specified by a super-user 3704. The super-user 3704 may be a system

administrator or manager at a purchasing organization associated with the users 3702, 3703, 3705. The super user 3704 determines the permissions 3734 associated with the users and the business rules 3756 applicable to the users and the purchasing organization. In some embodiments, the business rules and/or permissions include a procurement policy and purchasing permissions 3763. The purchasing permissions may include definitions of purchasing approval ability and purchasing limits for users. Purchasing approval ability determines which user can purchase or approve what type of item (e.g., only managers can purchase toxins or radioactive items). Purchase limits determines who can approve a purchase and to what dollar amount (e.g., any purchase requisi-

In some embodiments, the business rules 3756 may be 15 customized according to at least one of a group consisting of by user (as described), by role, and/or by department. For example, certain classes (job roles) of users (e.g., lab technicians) may have business rules associated with that class, and different classes of users (e.g., senior scientist) may have 20 different rules associated with their job role. In another example, users associated with a first department (e.g., engineering) may have different permissions (e.g., ability to purchase engine parts) associated with them than users associated with a second department (e.g., accounting, having 25 permission to purchase calculators.)

tion over \$25 needs management approval), as described.

In some embodiments, the business rules 3756 and/or permissions 3734 may have an option to prevent approval by a user of his or her own purchase request, in accordance with the business rules. This option may be enabled by user, by 30 role, and/or by department, as described. This option may reduce inappropriate use (e.g., unauthorized personal purchases) of the electronic procurement system 20. In this case, if a user submits a purchase request for an item, the purchase request is routed for approval by a person other than the user 35 (in some embodiments, more senior than the user), even though the user may otherwise have sufficient purchasing ability (within the user's purchasing limit) to purchase the item without approval.

In some embodiments, business rules **3756** and/or permissions **3734** may have an option to prevent approval by a user of his or her own purchase request over a spending limit, in accordance with the business rules. As described, a user may have permission to purchase up to a certain amount (as described) without requiring approval, as determined by business rules and permissions.

In some embodiments, the business rules are stored at the server 3720. In some embodiments, the purchase requisitions (3766, 3768, 3770) and purchase orders (3718, 3722, 3723) are stored at the server.

In some embodiments, the supplier (e.g., 3724, 3726, 3727) to which a purchase order is assigned is determined according to a procurement policy and with contractual agreements. For example, a purchasing organization may obtain a quantity discount if a quota 3750 of units is purchased from a particular supplier. In this instance, purchase orders may be preferentially assigned to that supplier to meet the quota and obtain the discount. Similarly, contracts may require that certain types of items be ordered from contracting suppliers. In some embodiments, items may be preferentially displayed to users based on quotas of purchases to be filled. In some embodiments, generating a purchase order includes associating workflow rules with the purchase order, in accordance with business rules.

In some embodiments, items (catalog and non-catalog) are 65 displayed to a user in accordance with the respective business rules **3756** associated with the respective items. In some

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embodiments, items (catalog and non-catalog) are displayed to a user in accordance with the respective business rules associated with the supplier.

FIG. 38 is a block diagram of a server system 3800. The server system 3800 includes users (3702, 3703, 3705), items (3761, 3762, 3764), purchase requests (3766, 3768, 3770), purchase approval 3714, purchase orders (3718, 3722, 3723), suppliers 3724, 3726, 3727, and purchase scheduling 3728, as described.

FIG. 38 illustrates a schematic of an exemplary graphical dashboard 3830 displaying status for the purchase requisition, purchase approvals, and purchase orders as described. A purchase request made status 3810 shows whether a purchase request has been submitted for a user or item. A purchase approved status 3812 shows if a purchase request for the user has been approved. A purchase order generated status 3814 shows if a purchase order associated with the user has been generated. In some embodiments, the status information is determined by checking one or more of the Purchase Order Database 2500, the Purchase Order Workflow Activity History 2510, Purchase Order User Selected Approver 2536, and Purchase Order Pending Actions 2538. A purchase scheduled status 3816 shows if a purchase associated with the user has been scheduled. A purchase fulfilled status 3818 shows if a purchase associated with the user has been fulfilled. An invoice paid status 3820 shows if an invoice associated with the user's purchase has been paid.

In some embodiments, these statuses may be associated with a user, an item, or a supplier. The status are displayed on the graphical dashboard 3830 (in some embodiments generated at the server 3720 but displayed at a user's client), including on a sales order queue 5300, a graphical display of sales orders status, which is described below in FIG. 53. The displaying includes presenting on the graphical dashboard approval, purchasing and fulfillment status for the item. In some embodiments, the graphical dashboard is dynamically generated at the server 3720 in accordance with business rules 3756 stored at the server, as described.

FIG. 39 shows a block diagram of a process flow implemented at a server system 3900. A user 3702 accesses the server system 3900, and attempts to order a product that is not available. The server system 3900 includes a purchase request 3766, a purchase approval 3714, a purchase order generation 3718, and a purchase scheduling 3728 as described. Server system 3900 also includes server 3720 and databases 3760 as described. The databases include catalog database 2400, permissions 3734, a business rules database 3756, requirements 3732, scheduling rules 3730, and other databases as described.

In FIG. 39, the user 3702 requests access to a first item 3902. The first item 3902 may be a catalog or non catalog item associated with the electronic procurement system. If the first item is unavailable 3904, a second available item 3906 corresponding to the first item 3902 is identified. The second item could be a similar item as identified in the catalog 2400, or could be a non-catalog item. An available item is one that is in stock at a supplier or at an internal stockroom, and may be ordered for prompt delivery. An unavailable item includes one that is out of stock, back-ordered, discontinued, or one that cannot otherwise be delivered promptly via the electronic procurement system.

The second available item **3906** is displayed to the user in accordance with business rules **3756** associated with the user. In some embodiments, the business rules are associated with the item. In some embodiments, the business rules are associated with a supplier of the item.

The user submits a purchase request 3766 for the second available item 3906, and a purchase approval 3714 is determined. A purchase order 3718 is generated for the item. The purchase order may be associated with a supplier 3724. The purchase request may be scheduled 3728, all as described.

FIG. 40 shows a block diagram of an e-procurement process flow operating on a server system 4000. Server system 4000 also includes server 3720 and databases as described. The databases include catalog database 2400, permissions 3734, a business rules database 3756, requirements 3732, scheduling rules 3730, and other databases as described.

In FIG. 40, first user 4002 submits a purchase request 4010 to the server for an item 4006. The item 4006 may be a catalog item (e.g., an item from catalog database 2400) or non catalog item associated with the electronic procurement system. A second user 4004 also submits a purchase request 4012 to the server for the same item 4006. In some embodiments, the second user is from the same organization as the first user.

A determination is made (4013) whether there is sufficient stock of the item available to fulfill both user purchase requests. If there is insufficient stock of the item available to fulfill both purchase requests, the user purchase requests are prioritized (4014). If there is sufficient stock, then purchase orders may be generated (4018) without prioritizing. Prioritizing (4014) can include determining which user request (if any) is highest priority, as described. In some embodiments, user requests of a similar priority level are filled according to a first in, first out (FIFO) method. In some embodiments, one or both of the user purchase requests are placed in a queue 30 (4016) according to the prioritizing. One or more purchase orders 4019, 4020 are generated (4018).

In some embodiments, prioritizing the user purchase requests is performed in accordance with the importance of a respective project or task associated with each respective 35 user. In some embodiments, importance may include factors such as remaining schedule, amount of budget, including budget overruns, proximity to deadlines or milestones, and other business or project management factors.

In some embodiments, user purchase requests of a similar 40 priority level in the queue are fulfilled according to a first in, first out (FIFO) method. In some embodiments, the order of insertion of a purchase request into the queue is determined by prioritizing 4014. In this case, the prioritizing may include sorting purchase orders into priority groups, which are then 45 inserted into the FIFO in order of priority group. A highest priority group is placed in the FIFO first, a next highest priority group goes next into the FIFO, and finally a lowest priority group goes into the FIFO last.

In some embodiments, a user having an order in the queue 50 **4016** is notified **4021** when the ordered item is ready for fulfillment **4020**. In some embodiments, this occurs when the item **4006** is delivered by supplier **3724**.

In some embodiments, an alternative available item 3906 (as described) is presented (4023) to a user 4004 having an 55 order in the queue, in accordance with a predicted fulfillment delay. For example, if a user has already placed an order, and the electronic procurement system determines that the already-placed order will be delayed, an alternative item may be presented to the user as described in reference to the 60 process flow 3900. The alternative item may be presented as an item to be ordered from an external supplier or an item from an internal stockroom. In some embodiments, where the original (unavailable) item 4006 was already approved for purchase, the alternative item 3906 may not require submission of a purchase request, approval, etc. since it is a substitute for the originally approved item.

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In some embodiments, the prioritizing is performed according to fees associated with the respective users. In some embodiments, a purchasing organization (buyer) may choose to subscribe or pay for a higher lever of service, including receiving preferential ordering position for a short-supply or allocated product. Tiers of service may be implemented in the electronic procurement system, where lower tier (lower paying or free) users of the system receive lower priority service that premium (higher fee paying) users. In some embodiments, if an item is in short supply, the purchasing process may become a bidding or auction process, whereupon users submit orders as bids.

In some embodiments, prioritizing (4022) may be performed upon fulfillment of the item order (4020), in addition to or instead of at the time of order. Upon fulfillment (delivery of the item), a determination may be made whether there is sufficient stock of the item available to fulfill both user purchase requests 4010 and 4012. The prioritized requests may be placed (4024) in a fulfillment FIFO or queue. The prioritized requests may be fulfilled according to the priority.

In some embodiments, if at time of delivery an alternative item comparable with the requested item is available, and the requested item is not available in sufficient stock to satisfy both the first user request 4010 and second user request 4012, one or more of the user purchase requests may be fulfilled with the alternative item. For example, if a first user A and second user B each order one ten-pack of notepads, the delivery fulfillment might include just one ten-pack and one twelve-pack. In this delivery, the twelve-pack is an alternative item comparable with the requested item ten-pack (as it can provide at least ten notepads, even if there are two left over), so the twelve pack can be used to fulfill the purchase request for a ten pack, as a substitute.

FIG. 41 illustrates an exemplary data structure 4100 for an inventory of an item. In some embodiments, this data structure is stored in the item database 2410, in the master database 236, at the eProcurement server 20. In some embodiments, the inventory data structure could be stored at a purchaser server, or at a purchaser client. The data structure may include purchase prices 4012, purchase quantities 4104, dates of purchase 4106, average cost of items per purchase 4108, shelf age of each purchase 4110, markup to be added to each purchase 4112, sale price 4114, and inventory 4116 of the item. An exemplary history of purchases (4118, 4120, 4122, 4124) is shown also. An exemplary sale history may also be included in the data structure.

In some embodiments, by analyzing a series of user purchases of an item (e.g. history 4118, 4120, 4122, 4124), a property (such as cost, time in inventory, spoilage status, etc.) per item purchased is determined. Inventory 4116 is managed (by the server, or by a user accessing the server) based on the property per item. The managing includes making decisions to purchase items to replenish inventory, to deplete inventory in order to sell items by a 'best before' date, determining pricing to achieve a desired markup, etc. In some embodiments, the property per item is a cost per item purchased (e.g. average cost 4108). The average cost may be calculated by dividing the purchase price 4102 (total) by the quantity purchased 4104.

In some embodiments, the cost per item includes a holding cost per unit of that item. This holding cost can include depreciation, value reduction due to obsolescence, shrinkage, reduction of remaining shelf life, etc. In some embodiments, managing includes determining a sale price per item 4114, based on the cost per item 4108 and a markup 4112. In some embodiments, the managing is performed by a user at the purchaser using manage purchases engine 1533. The sale

price may also be reduced in accordance with shelf age 4110. The shelf age may be calculated by subtracting the date purchased from the current date to find the number of days since purchase of that batch of items. The sale price 4114 may be calculated by multiplying the average cost per item 4108 by the markup 4112.

In some embodiments, the property per item is a spoilage status, based upon an average holding time per item. This is used for food, medicines, and organics that have 'best before' date. In some embodiments, the property per item is velocity of purchases and/or velocity of sales for that item. In some embodiments, the property per item is a predicted out-ofstock time based upon the velocity of purchases and a velocity

The categories and values described here are exemplary, and other properties and calculations could be used to achieve the result of managing inventory.

FIG. 42 shows a block diagram of a process flow, implemented at a server system 4200. The process flow shows an 20 e-procurement process for identifying a discrepancy between a purchase document and an invoice.

Server system 4200 also includes server 3720 and databases as described. The databases include catalog database 2400, permissions 3734, a business rules database 3756, 25 requirements 3732, scheduling rules 3730, and other databases as described.

A supplier invoice 4210 is received by the electronic procurement system. In response to the receiving, a purchase document corresponding to the invoice is identified (4230). Purchase documents may include one or more of a purchase request 4212 and a purchase order 4214. The content of the purchase document is compared (4216) to the supplier purchase document and the invoice. A notification is generated based upon the identified discrepancy, and may be sent to a user associated with the purchase order 4212 or request 4214. The notification can include an online dispute notification 4222, a request for payment approval 4224, or a notification of automatic payment (4226).

The discrepancy check 4217 compares properties such as price, quantity, and delivery date 4220 between the purchase documents and the invoice. In some embodiments, identifying a discrepancy includes determining if a property associ- 45 ated with the invoice is outside of a tolerance range 4218. The tolerance range may be specified by business rules 3756. If the discrepancy between the purchase document and the invoice is above a threshold (e.g. percentage mismatch, dollar value, number of days late, number of defects, etc.), then the 50 dispute notification 4222 is sent to the supplier, and in some embodiments to a user associated with the purchase request and purchase order. In some embodiments, the supplier and a purchaser associated with the invoice may access an online dispute resolution mechanism 4222, which may be hosted at 55 the electronic procurement system. If the discrepancy is minor, the invoice can be sent to the user with a request for payment approval 4224, i.e. a request to verify that the match is correct. If there is no discrepancy, then the invoice is sent for automatic payment 4226.

The discrepancy check 4217 can include performing at least a two way match between the invoice and the purchase document. A two way match is where one of the purchase request 4212 and purchase order 4214 are matched with the invoice 4210. In some embodiments, the discrepancy check **4217** can include performing a three way match, including: comparing both the purchase request 4212 and the purchase

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order 4214 to the invoice 4210. In some embodiments, delivery documents may be compared with the purchase documents and the invoice.

In some embodiments, identifying a discrepancy (4216) includes determining if an alternative item comparable with the requested item has been delivered. If the purchase order or request has been satisfied by the alternative item, then the purchase request or purchase order may be treated as satisfied and the invoice paid by the user. For example, if a twelve pack of notepads is delivered instead of a ten pack, as described.

FIG. 43 is an exemplary screenshot 4300 of a workflow configuration user interface, generated by workflow management engine 1680. A super user or administrator uses this interface to configure steps and operations associated with a workflow. This configuration is typically performed at the super user's client, and the configuration data is saved at the eProcurement system 20.

Window 4310 shows status items for a particular step in the workflow. Save option 4330 allows changes to the workflow to be saved. Steps 4320 shows steps in the workflow associated with a purchase or operation. Import button 4340 allows workflow steps to be imported. Export button 4345 allows workflow steps to be exported. These workflow steps are stored in the workflow database 3000, in at least workflow step 3002.

FIG. 44 is an exemplary screenshot 4400 of an advanced dynamic workflow setup rule group menu, generated by workflow management engine 1680. This interface is used by a super user or administrator to setup rule groups, and changes are stored at the eProcurement system 20, as described. Changes are made to the workflow dynamic rule group 3034, and workflow dynamic rule group audit trail 3036, both stored in workflow database 3000.

In this menu, groups are used for easy reference and orgainvoice 4210. A discrepancy is identified (4217) between the nization of individual rules. Groups are referenced within the workflow configuration. The menu includes workflow tabs 4410 to navigate through the workflow options. A create new rule group button 4415 allows creation of new workflow rules. A rule group list 4420 shows created rules. An edit selected rule group menu 4430 allows a user to select individual rule groups for editing. A pair of save and delete buttons 4435 allow changed rules to be saved or rules to be deleted.

The rule management operations described (as follows) in FIGS. 45, 46, 47 may be performed using one or more of the Workflow Folder Selection Rule 3014, Workflow Dynamic Rule Group 3034, Workflow Dynamic Rule Group Audit Trail 3036, Workflow Dynamic Rule 3038, Workflow Dynamic Rule Element 3040, and Workflow Dynamic Rule Audit Trail 3042, in workflow database 3000, shown in FIG. 30. Product rule management may be performed using Product Rule 3122, from summary search database 3130, shown in FIG. 31. The menus described in FIGS. 45, 46, 47 are accessed by a super user or administrator when configuring the workflow rules, and changes are stored at the eProcurement system 20, as described. The menus described are generated by the workflow management engine 1680, residing on the eProcurement system **20**.

FIG. 45 is an exemplary screenshot 4500 of a rules man-60 agement setup menu. This menu allows rules controlling workflow operations to be specified by the super user or administrator. In this menu, rules can be created at the header and line item levels. Rules can be created and updated on an ad-hoc basis, since only the rule group is referenced in the workflow configuration. Approvers can be assigned to rules on an ad-hoc basis. Numerous rule types are supported including document total value, department, accounting

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codes, custom fields setup by the organization for the document, form type, line amount, line commodity code, and others

The rules management setup menu includes workflow tabs 4510 to navigate through the workflow options. A rule information menu 4515 shows information regarding a particular rule. An approver menu 4517 shows approvers for a rule and allows approvers to be added and removed. A document level rules menu 4520 allows rules to be specified per document, via a drop down menu 4525. A line level rules menu 4530 allows rules to be specified per line item, via a drop down item 4535

FIG. 46 is an exemplary screenshot 4600 of an assign rule to group menu. In this menu, multiple rules can be assigned to a single group by the user or super user. This offers flexibility in being able to add/modify/delete rules to workflow without having to change the workflow configuration since the configuration references a Rule Group and not the rules themselves.

The assign rule to group menu includes workflow tabs 4610 to navigate through the workflow options. An add rule button 4615 allows a new rule to be added. A rules menu 4617 shows rules assigned with a particular group. The rules menu includes a rule group field 4620, a rule name field 4622, a rule 25 description field 4624, and a select field 4626. Drop down menus 4630 and 4632 allow actions to be selected for a rule or rules

FIG. 47 is an exemplary screenshot 4700 of an import/ export rules group menu. In this menu, individual rules and 30 groups of rules can be imported or exported by a super user or administrator to facilitate integration with other systems. Additionally, groups and rules can be ported via electronic file between application environments, such as from test to production environments. In some embodiments, the groups 35 and rules are ported as an XML based file.

The import/export rules group menu includes workflow tabs 4710 to navigate through the workflow options. A request menu 4715 allows import or export actions to be initiated. An action drop down menu 4720 allows a user to select a desired 40 action. A recent activity window 4730 shows recent import/export requests submitted. Import instructions 4725 assist a user in importing rules.

FIG. 48 is an exemplary screenshot 4800 of an item setup menu within a supplies manager application. This menu 45 allows key attributes of an item to be managed and pricing for fixed pricing items to be managed. This menu is generated at the eProcurement server 20, in some embodiments by the catalog management engine 1695 and/or the catalog module 2120. The menu is accessed by a user (or super user) at the 50 supplier when setting attributes and pricing for items. Attributes and prices for items, set using the item setup menu, are stored at the catalog database 2400, under items data base 2401 (for individual item attributes) and price database 2430 (for prices associated with items).

The item setup menu includes workflow tabs **4810** to navigate through the supplies manager options. The attribute value menu **4820** includes the following fields:

Part number 4822, a part number for the product;

Product Description 4824;

Packaging UOM 4826, unit of measure for packaging;

Product Size 4828

Product Color 4830;

Status **4832**, the status relating to a product (e.g., available, unavailable, backordered, etc);

UNSPSC **4834**, the United Nations Standard Products and Services Code, where UNSPSC is a coding system to

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classify both products and services for use throughout the global eCommerce marketplace;

Category 4836, for product category;

Searchable Keywords **4838**, keywords or tags best describing the product that are used as hits for a user search;

Manufacturer Name 4840;

Manufacturer Part Number 4842:

Long description **4744**, a detailed description of the product:

Lead Time **4846**, expected time between ordering and receiving the item;

UPC 4848, the universal product code (barcode) for the product;

More Information URL **4852**, URL link to more information about the item;

Image URL 4854, product image URL;

MSDS URL **4856**, material safety data sheet URL;

Technical Data Sheet URL **4858**, a URL link to a datasheet for the item;

Is Recycled? 4862;

Is Controlled Substance? **4860**, a flag indicating a potential controlled substance such as certain drugs, opiates, etc.;

Is Hazardous Material **4864**, a flag indicating a potential hazardous (e.g., biohazard, fumes, etc) item;

Is Radioactive? **4866**, a flag indicating a potential restricted radioactive item;

Is Minor Radioactive? **4868**, a flag indicating a potential restricted radioactive item;

Is Toxin? **4872** a flag indicating a potential toxic substance such as poison;

Is Select Agent? **4870** a flag indicating select agents, which are pathogens or biological toxins that have been declared by the U.S. Department of Health and Human Services or by the U.S. Department of Agriculture to have the "potential to pose a severe threat to public health and safety"; and

Upload new image field and button 4874.

A create new item button **4880** and copy standard data to new button **4882** are also present.

FIG. 49A is an exemplary screenshot 4900 of a setup inventory attributes menu. In this menu, inventory parameters are inherited from the fulfillment center where the item is stocked. The parameters can be overridden at the item level as necessary. The parameters drive replenishment functionality. This menu is generated at the eProcurement server 20, in some embodiments by the catalog management engine 1695 and/or the catalog module 2120. For non-catalog items, it may be generated using a purchasing engine 1681. The menu is accessed by a user (or super user) at the supplier when setting attributes for inventory. These inventory attributes are stored at the catalog database 2400, under item inventory config 2526, and changes are stored in item inventory config audit trail 2428.

The setup inventory attributes menu includes workflow tabs 4910 to navigate through the workflow options. A fulfillment address menu 4920 shows an address for a supplier. An inventory parameter menu with tabs 4930 allows navigation through the inventory options.

The inventory parameter menu **4930** includes the following fields:

Minimum inventory level 4932;

Maximum inventory level 4934;

Reorder point 4936; and

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Economic Order Quantity 4938.

A select box menu to override default values **4940** is also present.

In some embodiments, the item attribute/parameter management may be performed using the items database 2401, including Item Inventory Config 2426 for configuring inventory of an item, and Item Inventory Config Audit Trail 2428 for tracking changes in inventory configuration.

FIG. 49B is an exemplary screenshot 4950 of an item setup pricing menu. In this menu, a pricing model is inherited from the fulfillment center default pricing model. The pricing model can be overridden at the item level. In some embodiments, the pricing models may include fixed (price is constant), FIFO (First in first out—price is based on cost of items plus a markup using a FIFO model, e.g., the price for an item is the price of the oldest one in inventory plus a markup), and cost averaging where the price of an item is based on the average cost of all of the item in inventory plus a markup.

In some embodiments, the item pricing management may be performed by a user (or super user) using the price database 2430, including Price Set 2440 (a price for the item), Price Version Approval 2442, and Price Version 2444 (a version of a price associated with the item). This menu is generated at the server 20, in some embodiments by the catalog management engine 1695 and/or the catalog module 2120. For non-catalog items, it can be generated using a database management module 2170. The menu is accessed by a user (or super user) at the supplier when setting attributes and pricing for items. Attributes and prices for items, set using the item setup menu, are stored at the catalog database 2400, under items data base 2401 (for individual item attributes) and price database 2430 (for prices associated with items).

The item setup pricing menu includes menu tab **4955** to 30 navigate through the pricing options. The setup pricing menu **4950** includes a pricing model **4960** with drop down menu **4964** to select the pricing style and a markup percentage **4963**. A select box menu to override default values **4966** and a save button **4968** are also present.

FIG. 49C is an exemplary screenshot 4970 of an item setup replenishment link menu. In this menu, an item managed in inventory can be linked to one or more e-commerce items or non-catalog items for replenishment. A default item can be configured for use in the replenishment report. This menu is 40 generated at the server 20, in some embodiments by the purchasing engine 1681. The menu is accessed by a user (or super user) at the supplier when maintaining an item in inventory.

In some embodiments, the item replenishment management may be performed using the receipt database **2800**. This database includes a Receipt Line Inventory Replenishment field **2818**, which may correspond to an inventory replenishment line for a receipt.

The item setup replenishment link menu includes menu tab 50 4980 to navigate through the replenishment options. The setup replenishment link menu 4980 includes a set preferred supplier button 4982, a supplier field 4984, an item name field 4986, a catalog number field 4988, a size field 4990, a unit of measure field (UOM) 4992, a stocked units field 4994, and a 55 price field 4996. Selecting any of these buttons updates the items database 2401 and/or the price database 2430.

FIG. 50 is an exemplary screenshot 5000 of a supplier setup inventory parameters menu. This menu is generated at the eProcurement server 20, in some embodiments by the sales 60 management engine 1760. The menu is accessed by a user (or super user) at the supplier responsible for setting parameters for sales inventory.

In this menu, inventory parameter defaults can be set for all items stocked within the fulfillment center. The quantity on 65 hand or in/out of stock displayed in search results is configured. Default parameters for fulfillment for all sales orders

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managed at this fulfillment center are configured. Default parameters for pricing models for items stocked in the fulfillment center are configured. A location hierarchy is configured, e.g., shelves, bins, etc. Kiosk (self-checkout) parameters are configured.

The supplier setup inventory parameters menu includes menu tabs 5010 and 5020 to navigate through the inventory options. A supplier label 5005 shows an internal stockroom as the supplier. A kiosk tab 5040 shows options associated with a self-checkout option. A price tolerance select box 5050 allows selection of a price tolerance. An auto-allocate backordered items box 5060 allows back ordered items to be allocated

FIG. 51 is an exemplary screenshot 5100 of a search results menu. This menu is generated at the eProcurement server 20, in some embodiments by the purchasing engine 1681 and/or catalog engine 1655. The menu is accessed by a user at the purchaser when ordering items and monitoring stock of items. In this menu, both internally stocked (stockroom) and external vendor products are searched upon and shown in results. The menu displays whether an item is in/out of stock for internally stocked items in the stockroom, and actual quantity on hand can be seen.

Supplier name and/or an icon 5110 may be used to indicate that an internal stockroom holds the searched items (staplers). Add to active cart option in drop down menu 5112 allows a user to select items to be added to a shopping cart.

FIG. 52 is an exemplary screenshot 5200 of a shopping cart menu. The menu is generated at eProcurement server 20, and is accessed by a user at the purchaser when ordering items, e.g., an individual user with purchasing permissions or a purchasing department. In this menu, both internally stocked/fulfilled and external vendor products are ordered using the same interface. Stocked and external vendor products can be part of the same requisition.

An add non-catalog item button 5205 allows non-catalog items to be added to the cart. A first line item 5210 shows a product description 5215 from an external supplier. A supplier information window 5230 shows contract, purchaser order, and quote details for the external supplier. A second line item 5220 shows a product description 5225 from an external supplier. A drop down menu 5235 allows actions (e.g., add to favorites) for selected suppliers.

FIG. 53 is an exemplary screenshot 5300 of a sales order queue. In this menu, sales orders are routed to the appropriate departments, users, and queues depending on organization-specific rules. This menu is generated at the eProcurement system 20 using a rules based sales engine 1760, in some embodiments similar to engines used for other documents, e.g., requisitions and purchase orders using purchasing engine 1681. The sales order queue is accessed by a user at a supplier when monitoring or managing sales order status.

Allocation status and shipment status are shown. Backorder and other exceptions for the sales order are shown. Order fulfillment is performed from this screen.

The sales order queue includes a workflow tab 5305 to navigate through the workflow options. An approval filter 5310 allows sales orders to be filtered. A 'my sales orders' menu 5315 shows sales orders associated with a particular user. An open sales orders menu shows sales orders that are in progress. The sales orders menus include fields for sales order information 5328, purchase order number 5330, department 5332, priority 5334, date/time 5336, buyer information 5338, assignee information 5340, allocation information 5340, warning information 5344, shipment status information 5346, assignment information 5348, and a select box 5350.

FIG. **54** is an exemplary screenshot **5400** of a picking/packing slip. This slip menu shows where items are to be picked from within the internal stockroom, and shows delivery information and line item status. The menu is generated at the eProcurement server **20**, in some embodiments accessing the purchase order database **2500**, and is accessed by a user at the purchaser responsible for receiving ordered (fulfilled) items when they arrive in stock.

Location field **5405** shows the location of the internal stockroom. Buyer window **5415** shows buyer information. 10 Ship to window **5420** shows shipping information; here it is the same as the supplier (internal stockroom). Bill-to window **5425** shows billing information, here it is the same as the supplier. Line item window **5430** gives a line item description of items ordered.

FIG. 55 is an exemplary screenshot 5500 of a purchase order status/acknowledgement. The menu is generated at the eProcurement server 20 by purchase engine 1931, in some embodiments including order entry module 1933 and order approval module 1934, and is accessed by a user at the purchaser responsible for ordering items. In some embodiments, the eProcurement server 20 accesses the purchase order database 2500 to determine purchase order status. This menu shows purchase order statuses within the purchase order user interface. Delivery, backorder, and related information are 25 shown here. The status is automatically updated based on fulfillment activities within the stockroom.

The purchase order status/acknowledgement includes workflow tabs 5505 and 5510 to navigate through the workflow options. General information window 5515 gives details 30 regarding an order, and document status window 5530 gives details of documents relating to the order. A line item status window 5520 shows the status of each line item. A backorder warning field 5525 shows that an item is backordered.

FIG. **56** is an exemplary screenshot **5600** of a replenishment report. The menu is generated at the eProcurement server **20**, in some embodiments by the purchasing engine **1681** accessing requisition database **2700**, and is accessed by a user at the purchaser when managing the inventory of items. This menu shows all items requiring replenishment (restocking). The quantity to order based on inventory parameters (MAX, ROP, EOQ), quantity on hand, on order, and backordered, is automatically populated into a purchase request. In some embodiments the automatic population is performed by a robot as described in FIG. **75**. In some embodiments, this 45 automatic population is performed by Invoice, PO, Order, Requisition Module (**2082**. FIG. **20**).

The replenishment report includes menu tab 5605 to navigate through the replenishment options. Quantity on hand field 5620, quantity on order field 5622, pending sales order field 5624, quantity on backorder field 5626, preferred supplier field 5628, preferred item number field 5630, price field 5632, quantity box 5634, and add to cart icon 5636 are also shown.

FIG. **57** is an exemplary screenshot **5700** of a replenishment order. This menu shows an order marked as a replenishment order. The order is generated at the eProcurement server **20**, in some embodiments by the requisition fulfillment engine **1686** accessing requisition database **2700**, and is accessed by a user at the purchaser responsible for replenishing inventory items. This order lists inventory item and location where the item is being stocked. Stocked unit conversion can be overridden from item default. For example, conversion may be performed from units ordered, such as case to units sold, where a case of **24** is sold in units of each.

Product description line item 5710 gives details of a particular product. A replenish stock box 5715 allows stock to be

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automatically replenished. A supplier field shows that the supplier is an internal stockroom. A stocked units box 5735 allows a user to enter the number of items to be kept in stock.

FIG. 58A is an exemplary screenshot 5800 of a replenishment receipt. This receipt is generated at the eProcurement server ${\bf 20},$ in some embodiments by the requisition fulfillment engine 1686 accessing the receipt database 2800, and is accessed by a user at the purchaser responsible for replenishing inventory items. This menu shows replenishment details, and the default location for an item is automatically populated. In some embodiments, upon receipt, items are automatically placed into inventory in their appropriate location. In some embodiments, items are physically placed (e.g., by an operator with a forklift) into a physical inventory location (e.g., a stockroom or warehouse) and the electronic procurement system is updated accordingly. In some embodiments, an item count is just updated in the electronic procurement system, without any corresponding physical movement of the item by an operator.

The replenishment receipt includes menu tabs **5805** and **5820** to navigate through the receiving options. Add purchase order button **5810** allows a purchase order to be added. Save updates button **5812** allows changes to be saved. Complete button **5814** allows a user to indicate that the receipt is complete. A purchase order number field **5825** specifies the purchase order. The purchase order includes details such as PO line number, product name, catalog number, quantity or units of measure, previous receipts, and quantity ordered. Additional information such as stocked item information (item, item number, stocked units) is shown, along with fulfillment center information (e.g., surplus store) and lot tracking information.

As described, the receipt replenishment may be performed using the receipt database 2800, including Receipt Line Inventory Replenishment 2818, in some embodiments an inventory replenishment line for a receipt.

FIG. **58**B is an exemplary screenshot **5850** of a replenishment allocation. This allocation is generated at the eProcurement server **20**, in some embodiments by the purchasing engine **1681** accessing the requisition database **2700**, and is accessed by a user at the purchaser responsible for replenishing inventory items. This menu shows that sales orders pending backorder for an item are automatically allocated inventory upon receipt of the new inventory.

A create quantity receipt **5852** button and create cost receipt button **5854** allow a user to create receipts based on quantity or cost respectively. Receipt number field **5860** shows that a receipt has been created for a particular PO number. Allocation menu **5870** shows orders that have been allocated, including sales order number, PO number, stocked item, stocked item number, quantity ordered, and quantity allocated.

FIG. **59**A is an exemplary screenshot **5900** of a setup folders/automated robots screen. In some embodiments, a robot is an automated set of instructions for performing a specific task, and for supporting the various workflow processes. Several robots exits to perform various tasks. In some embodiments robots are created by the electronic procurement system (or system vendor or creator) and may not be edited by a user. In some embodiments robots, or parameters of the robot, may be edited by a user. Exemplary robots and their tasks are described with regard to FIG. **75**. In some embodiment, a robot may perform functions from a script of operations. In some embodiments, a folder is an approval queue within a system. In some embodiments, one or more approvers are assigned to folders, and they are notified when documents are placed within the folder(s) for their review

and/or approval. In some embodiments folders, or parameters of the folder, may be edited by a user.

This screen is generated at the eProcurement server 20, in some embodiments by sales/purchase management module 2046 (FIG. 20) in coordination with information stored in the 5 buyer invoice database 3300 and/or sales invoice database 3400 (FIG. 22), accessed by invoice requisition module 2082 (FIG. 20). This screen is presented to a user developing workflow functions and importing or exporting them. In other embodiments, the screens, workflows, folders, and rules 10 described in the following figures could apply to any transaction workflow, such as a purchase workflow, a sales workflow, an invoice workflow, a payment workflow, a shipping workflow, or any other type of transaction workflow.

FIG. 59A shows an invoice menu tab 5902, including a 15 workflow folder import/export tab 5904. A window 5905 is associated with the import/export tab 5904. This window 5905 includes an export button 5910 that allows a user to export a workflow e.g., to a web location, to a file, to a library, to local storage, etc. The window 5905 includes a browse 20 button 5912 that enables a user to select folders or robots to import. The window 5905 includes a load folders/robots button 5914, in some embodiments to import an invoice workflow electronic file, including a folders, and/or a robots file. These folders and robots can be imported (e.g., from a web 25 location, a file, a library, a local storage, or a combination of these etc.) and exported (e.g., from the locations described) to facilitate the setup of the invoice workflow. Additionally, folders and robots can be ported via electronic file between application environments, e.g. test to production. In some 30 embodiments, a test environment is a 'safe' environment where new workflows, rules, folders and robots may be created, tested, and verified. When a user is satisfied that the new workflow, etc. is functional and ready for use, the user can then enable the new workflow and put it into production. This 35 may be referred to as moving from test to production.

Thus, a user can develop the functions he needs and test them in a safe (i.e., development) environment, and when the test is successful, port the functions to the active workflow for normal use. An example of this workflow development is 40 illustrated in FIGS. **44-48**, and described accordingly. In some embodiments, the folders and/or robots are XML based files. In other embodiments, the folders and/or robots could be in other related languages such as hypertext markup language (HTML), comma separated variables (CSV), tab 45 delimited text files, name value pairs, or any other markup language, or text based language.

FIG. **59**B is an exemplary screenshot **5920** of a setup workflow process screen. This screen is generated at the eProcurement server **20**, in some embodiments by sales/purchase management module **2046** (FIG. **20**), as described with reference to FIG. **59**A. This screen is presented to a user developing workflow functions and specifying rules associated with the workflow functions.

FIG. **59**B includes a workflow configuration menu tab **55 5921** and its associated window **5122**. The window **5122** may include an active version window **5924**, a process id window **5928**, a steps window **5931**, and an activities window **5940**. The workflow configuration menu tab **5921** may include an import tab **5921** and an export tab **5946**, for importing and 60 exporting folders and/or robots to and from the workflow, as described.

A active version window **5924** displays a list of workflow versions, and shows the active version. In some embodiment, a user may have one or more versions of a workflow, and may 65 have the option of activating or deactivating versions in order to test a newer version or to revert to an older workflow

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version. In some embodiments, a user has an option of creating a new version or deleting one or more versions of a workflow. In some embodiments, a user may save a current workflow as a new workflow version, so that the user can edit it but leave the original version intact.

A process id window **5928** shows a process identifier, version, creation date, user defined description, and active status, along with save button **5930** for saving changes to the workflow.

A steps window 5931 shows exemplary steps or operations in the workflow robot and/or folder, including non-purchase order approvals 5932, auto-matching (e.g., of invoices to purchase documents) 5934, matching exceptions 5936, and OK (approval) to pay 5938. In some embodiments, more or fewer operations may be specified. In some embodiments, non-purchase order approval is an approval for a purchase request that does not have an associated purchaser order. In some embodiments, auto-matching is a process whereby a first document (e.g., a an invoice) is compared to a corresponding second document (e.g., a purchase request or purchase order) to find if the amounts, quantities, etc. on the first document and second document correspond. In some embodiments, there may be a tolerance level (e.g., measured in dollar value, percentage of invoice total, percentage of quantity, etc.) within which a match is deemed acceptable. For example, a tolerance of 1% might be permitted on a shipment of items, so that if the invoice and purchase order totals fall within this tolerance range of 1%, the match is deemed acceptable. In some embodiments, a default tolerance range may be provided by the electronic procurement system. In some embodiments, a user may select one or more tolerance values or ranges according to his preferences.

A practical example of where this tolerance would be valuable is where a user orders several items and the shipping cost varies from an expected shipping cost due to (for example) a weight of the items. In this example, a user would probably consider the order satisfied (e.g., a match) even if the shipping cost is slightly different from expected, within a tolerance range. In another example, if a tax rate (e.g., a state sales tax rate) changes slightly, a user would probably consider the order satisfied (e.g., a match) if the invoice price is slightly different from expected due to the change in tax rate, within a tolerance range. In another example, if a first type of unit (e.g. 12 oz beaker) is ordered, but a second item (e.g., 12.5 oz beaker) is delivered, and the delivered beaker is within the cost and/or other tolerance range set by the user, then the order is satisfied (e.g., a match).

An activities window 5940 shows activity names and rules associated with each of the steps. A start instruction 5942 and an end instruction 5944 specify a start and an end respectively for steps associated with a folder and/or robot. A set of rules 5943A-D describe exemplary rules and conditions associated with them for processing invoices (e.g., purchase invoices and/or sales invoices).

In an exemplary embodiment, rule 5942A determines if a document needs to be submitted for a non-purchase order approval, i.e., for approval outside of the regular approval process. In an example, rule 5942A indicates that if a document (e.g., an invoice, a purchase order, purchase requisition, or any other document) has non-purchase order lines (value is true) then the non-purchase order approval workflow is started. In some embodiments, having non-purchase order lines means that a field (e.g., in a database associated with the document) indicates that non-purchase order lines are present, or alternatively, upon running a function on the database, it returns a result indicating that non-purchase order lines are present.

In an exemplary embodiment, rule **5942**B determines automatic matching of invoices and purchase documents. In an example, rule **5942**B indicates that if a document (e.g., an invoice, a purchase order, purchase requisition, or any other document) does not (value is false) have non-purchaser order lines (as described above) then an automatic matching workflow is started.

In an exemplary embodiment, rule **5942**C determines matching exceptions between (for example) invoices and purchase documents. A matching exception is where (for 10 example) an invoice does not correspond to (match up with) a purchase document, within a specified tolerance range, as described. In an example, if a matching status field (e.g. match status) of a database associated with the document (e.g. document) has a value of unmatched, and is not within a 15 tolerance value of the document (e.g., tolerance status), then a document exception workflow is started.

In an exemplary embodiment, rule **5942**D determines if an invoice payment workflow (e.g., OK to Pay) is to be started. In an example, rule **5942**D indicates that if a match status field 20 (e.g., match status) in a database associated with the document or a returned value from a function performed on the database, has a value of "matched," or if a match status field (or returned value) has a status of "do not match," then the invoice payment workflow is started. This means that if a 25 document (e.g., an invoice) is matched, or if the document indicates that no match is required, then the document should be paid.

In some embodiments, exemplary rules and conditions may be described for processing other business documents 30 such as purchase orders, purchase requisitions, credit memos, receipts, contracts, tax documents, employment documents, or any other financial, governmental, or transactional document.

In some embodiments, the rules are logical statements 35 which, if met, cause the step to be executed. In some embodiments, more complex logical or programming instructions may be used to implement rules in the workflow folder and/or robot

The setup workflow process of FIG. 59B allows for the 40 creation of a unique workflow process for invoices and credit memos based on the customer's business processes. The invoice workflow steps are steps that will be visible to end users of the system. In some embodiments, other steps that are only visible to a super-user or system administrator may be 45 specified also. The invoice activities window 5940 allows the administrator or super-user to view the workflow steps and the rules associated with each step. The activities have rules that define which documents will fall into the activity. The invoice workflow configuration can be imported/exported to 50 facilitate the setup of invoice workflow. Additionally, invoice workflow configurations can be ported via electronic file between application environments, e.g. from test to production, as discussed. In some embodiments, this file is XMLbased, as described.

FIG. 59C shows an exemplary screenshot 5950 of an assign approvers screen. This screen is generated at the eProcurement server 20, in some embodiments by sales/purchase management module 2046 (FIG. 20), as described with reference to FIG. 59A. In some embodiments, this screen is displayed to 60 a super-user to assign one or more approvers for a workflow folder. In some embodiments, this screen is displayed to an approver to assign one or more approvers for an invoice.

FIG. **59**C includes a shared workflow folders menu tab **5952**, with an associated window **5953**. The window **5953** 65 includes an apply all changes button **5953**, for applying changes made in the window. The window **5953** also includes

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a create new folder button 5954 to allow a user to create a new folder and/or robot to implement a rule, as described. Exemplary folders include matching exception(s), non-purchase order approvals, remit to validation, and others. The window 5953 includes a selected folder window 5958 that shows a folder currently selected (e.g., "matching exception" in this example) by the user and a save button 5960 allows a user to make changes to that folder. As described, the matching exception rule is invoked when the system fails to find a match between documents, e.g., between a purchase document and an invoice. In some embodiments, a matching exception may check for matches between three or more documents (e.g. between a purchase order, an invoice, and a delivery slip) and if all three fail to match, then report a matching exception. In some embodiments, an auto-matching function can check for matches between three or more documents, and, if all three match, approve a document (e.g., an invoice) for payment.

An add user button **5962** allows an administrator or superuser to add approvers to a folder and/or robot in the selected folder window **5958** above. In some embodiments, the approver user information includes approver name **5964**, user name **5966**, approver email **5968**, and approver phone **5970**. In some embodiments, a remove button **5972** allows an administrator or super-user to remove an approver.

This screen of FIG. **59**C allows a user to assign approvers to shared workflow folders. This assignment allows approvers to distribute the approval workload among themselves, which will lead to overall faster approvals as bottlenecks are likely to be eliminated.

FIG. 59D shows an exemplary screenshot 5975 of a review required approvals screen. This screen is generated at the eProcurement server 20, in some embodiments by sales/purchase management module 2046 (FIG. 20), as described with reference to FIG. 59A. This screen is displayed to a user wishing to see the status of a document (e.g., an invoice) in the workflow as it is being processed.

FIG. 59D includes a settlement menu tab 5976, including an invoice history menu tab 5977. This invoice history tab includes information such as invoice number, supplier invoice number, supplier name, and also includes a drop down menu 5978 for performing available actions (e.g., perform matching). An approvals menu tab 5980 shows at what stage in the approvals process an invoice is currently active. Approvals stages include invoice submitted 5982, auto matching performed 5984, matching exceptions resolved 5986, and invoice completed 5988. In some embodiments, more or fewer stages are possible, depending on the number of steps in the folders and/or robots specified.

In some embodiments, the screen of FIG. 59D allows the user to view the current state of the document within invoice workflow. This screen shows the completed, active and pending steps: In some embodiments, another step shows the assigned approver associated with an invoice. In some embodiments, the screen shows a plurality of tabs representing buyer invoice 5979, approvals 5980, matching 5981, and history 5983. The buyer invoice tab 5979 represents a buyer invoice to be approved for payment. The approvals tab 5980 represents the approvals and matching process shown in FIG. 59D. The matching tab 5981 represents matching documents corresponding to the buyer invoice. The history tab 5983 represents a history of events associated with the buyer invoice.

FIG. **59**E shows an exemplary screenshot **5990** of a "review invoices requiring approval screen." This screen is generated at the eProcurement server **20**, in some embodiments by sales/purchase management module **2046** (FIG. **20**), as described with reference to FIG. **59**A. This screen is

presented to an approver checking the status of invoices assigned to him/her for review/approval.

FIG. **59**E includes an approvals menu tab **5991**, including an invoice menu tab **5999**. The invoice menu tab includes a toolbar **5992** to filter invoice approvals provided to the user approver (in some embodiments with sub options to show invoice details and assign substitute approvers), and a drop down menu **5995** to apply actions to selected invoices (e.g., approve/complete invoice). In some embodiments, the filtering includes showing invoices that are approved, or showing invoices that are not approved, or a combination thereof. In some embodiments, the filtering includes showing invoices that are assigned to the user, showing invoices that are assigned to a pool of approvers, showing invoices for which the user is a substitute approver, or a combination thereof.

A window **5993** shows a 'my invoice approvals' personal folder, showing invoice approvals associated with the current user. The invoice approvals may in some embodiments include one or more details such as invoice number, state (e.g., active, inactive, etc.), supplier invoice number, supplier 20 name, invoice date, invoice type, amount of invoice, due date, discount date (date by which if paid, a discount is applied), action (e.g. approve, deny, etc.), and a select box **5996** for indicating that an action (e.g., from drop down menu **5995**) should be performed on the invoice. A matching exceptions window **5994** shows matching exceptions for invoices and the approval state, approver, supplier, invoice and due dates, amount, and discount date associated with each invoice, and a select box indicating that an action (e.g., from drop down menu **5995**) should be performed to the invoice.

The matching exceptions window **5994** may show an invoice (e.g., reference 1-00128) with a status 'assigned' that has been assigned to the user, as shown in the 'My Invoice Approvals' window **5993**. The matching exceptions window **5997** may also show other non-assigned invoices (e.g., those 35 listed below the assigned invoice 1-00128 in window **5994**).

In some embodiments, this window **5994** is a shared approver folder, in which a plurality of approvers **5997** may review invoices and make approval decisions regarding them. This shared approver folder may help reduce bottlenecks in 40 the system if one approver is unavailable or too busy to approve invoices, by sharing the workload among other approvers. Apply action button **5998** chooses an action to apply to a selected invoice.

The "review invoices requiring approval" screen of FIG. 45
59E allows the approver to view their personal workflow approval list, e.g. the documents currently assigned to them for review. This screen allows the approver to view all shared folders assigned to them as part of the Workflow Setup process. In some embodiments, a user or users have the capabilities to perform from such a screen one or more of: approving or completing invoices, rejecting invoices, placing documents (invoices) on hold, and forwarding invoices to other approvers. In some embodiments, substitute approvers may be assigned to personal and shared folders. In some embodiments, users with advanced management permissions (super users or administrators) may manage folders and documents on behalf of other approvers.

FIG. **60** is a flowchart representing a server method **6000** for hosting an eProcurement system, according to certain 60 embodiments of the invention. The server method **6000** may be governed by instructions that are stored in a computer readable storage medium and that are executed by one or more processors of one or more servers. Each of the operations shown in FIG. **60** may correspond to instructions stored 65 in a computer memory or computer readable storage medium. The computer readable storage medium may include a mag-

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netic or optical disk storage device, solid state storage devices such as flash memory, or other non-volatile memory device or devices. The computer readable instructions stored on the computer readable storage medium are in source code, assembly language code, object code, or other instruction format that is interpreted by one or more processors. In the following flowchart, dashed line boxes indicate optional operations or steps that may be implemented in some embodiments.

In the following descriptions and embodiments, purchase orders may be accessed in purchase orders database (FIG. 22, 2500), requisitions may be accessed in requisitions database (FIG. 22, 2700) invoices may be accessed in buyers invoice database (FIG. 22, 3300) and sales invoice database (FIG. 22, 3400), and business rules may be accessed in a business rules database, all as described. The databases may be accessed by database and management module (FIG. 20, 2070) and invoice, purchase order, order and requisition module (FIG. 20, 2082).

In some embodiments, the server method 6000 includes the following operations, performed at a server hosting an electronic procurement system. The server method includes associating business rules with a plurality of users (6002). One or more catalog items are displayed (6004) to a respective user in accordance with the respective business rules associated with that user. In some embodiments, approval of a purchase requisition is determined (6006) for a displayed catalog item. A purchase order is generated (6008), in some embodiments for the purchase requisition, and/or in some embodiments for a displayed item.

In some embodiments, the business rules are specified by a super-user (6019). In some embodiments, the business rules are stored at the server (6020). In some embodiments, the purchase documents (including purchase requisition and purchase order) are stored at the server (6021). In some embodiments, the business rules include a procurement policy and purchasing permissions (6024). In some embodiments, the purchasing permissions include purchasing approval ability and purchasing limit ability (6026).

In some embodiments, the business rules may be customized according to at least one of a group consisting of by user, by role, and/or by department (6028). In some embodiments, approval by a user of his or her own purchase request may be prevented in accordance with the business rules (6030). In some embodiments, approval by a user of his or her own purchase request over a spending limit may be prevented in accordance with the business rules (6032). In some embodiments, the system determines from which supplier items are ordered in accordance with the procurement policy and contractual agreements (6034).

FIG. 61 is a flowchart 6100, continuing the flowchart of FIG. 60. In some embodiments, the electronic procurement system is a single instance multi-tenant system (6110). In some embodiments, the electronic procurement system is a web-based system (6112). In some embodiments, the server is located independently from suppliers and purchasers of the electronic procurement system (6114). In some embodiments, the server is located at a supplier of the electronic procurement system (6116). In some embodiments, the server is located at a purchaser of the electronic procurement system (6118). These features of FIG. 61 apply in part or in whole to all systems described here, including systems 6900, 7000, 7100 as described.

In some embodiments, displaying catalog items in accordance with business rules comprises preferentially displaying items based on quotas of purchases to be filled (6120). In some embodiments, generating a purchase order includes

associating workflow rules with the purchase order, in accordance with business rules (6122).

FIG. **62** is a flowchart representing a server method **6200** for hosting an eProcurement system, according to certain embodiments of the invention. The server method **6200** may 5 be governed by instructions that are stored in a computer readable storage medium, as described.

In some embodiments, server method 6200 includes the following operations. Business rules are associated (6202) with a plurality of catalog items. In some embodiments, the 10 business rules are associated with a supplier. One or more catalog items are displayed (6204) to a respective user in accordance with the respective business rules associated with the respective catalog items. In some embodiments, the display is in accordance with business rules associated with a 15 supplier. In some embodiments, approval is determined (6206) for a purchase requisition for a displayed catalog item. A purchase order is generated (6208), in some embodiments for the purchase requisition and/or in some embodiments for a displayed item.

In some embodiments, purchasing status is displayed for the purchase requisition (6210). In some embodiments, purchasing status is displayed for the purchase order. In some embodiments, displaying includes presenting on a graphical dashboard approval, purchasing, and fulfillment status for the item (6212).

In some embodiments, the graphical dashboard is dynamically generated at the server in accordance with business rules stored at the server (6214). In some embodiments, purchasing status is displayed for a shopping cart associated with the 30 purchase requisition (6216). In some embodiments, purchasing status is displayed for a purchase order associated with the purchase requisition (6218).

FIG. 63 is a flowchart representing a server method 6300 for hosting an eProcurement system, according to certain 35 embodiments of the invention. The server method 6300 may be governed by instructions that are stored in a computer readable storage medium, as described.

In some embodiments, server method 6300 includes the following, performed at a server hosting an electronic procurement system. A second available catalog item is identified (6302) corresponding to a first catalog item, in response to a user request to access the first catalog item associated with the electronic procurement system, wherein the first catalog item is unavailable. The second available catalog item 45 is displayed (6304) to the user in accordance with business rules associated with the user. In some embodiments, approval of a purchase requisition is determined (6306) for the displayed catalog item. A purchase order is generated (6308), in some embodiments for the purchase requisition, 50 and/or in some embodiments for a displayed item.

In some embodiments, the business rules associated with the user are determined by a super user (6310). In some embodiments, the super user is at an organization associated with the user. In some embodiments, the business rules associated with the user are stored at the server hosting the electronic procurement system (6312).

In some embodiments, the electronic procurement system includes a plurality of suppliers, at least one of the suppliers having a catalog (6314). In some embodiments, the electronic 60 procurement system includes a plurality of purchasing organizations, each having at least one user, with permissions associated with the at least one user (6316). In some embodiments, the permissions are determined in accordance with business rules (6318). In some embodiments, the permissions associated with the at least one user determined by a super user (6320). In some embodiments, the permissions associated with the at least one user determined by a super user (6320).

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mine the user's ability to purchase from the catalogs associated with the plurality of suppliers (6322).

FIG. **64** is a flowchart representing a server method **6400** for hosting an eProcurement system, according to certain embodiments of the invention. The server method **6400** may be governed by instructions that are stored in a computer readable storage medium, as described.

In some embodiments, server method 6400 includes the following operations. A first user purchase request to purchase an item and a second user purchase request to purchase the same item are received (6402). A determination is made (6404) if there is sufficient stock of the item available to fulfill both user purchase requests. User purchase requests are prioritized (6406) if there is insufficient stock of the item available to fulfill both purchase requests. A purchase order is generated (6408) for at least one of the user purchase requests in accordance with the prioritizing.

In some embodiments, the electronic procurement system is a single instance multi-tenant system (6418). In some embodiments, the server system includes a plurality of purchasing organizations, each purchasing organization having a plurality of associated users. In some embodiments, prioritizing the user purchase requests is performed in accordance with business rules (6410). In some embodiments, prioritizing the user purchase requests is performed in accordance with positions of the users on a management hierarchy (6412). In some embodiments, prioritizing the user purchase requests is performed in accordance with the importance of a respective project associated with a user (6414).

In some embodiments, user purchase requests of a similar priority level are fulfilled according to a first in, first out (FIFO) method (6420). In some embodiments both user purchase requests are placed in a queue according to the prioritizing (6422). In some embodiments user purchase requests of a similar priority level in the queue are fulfilled according to a first in, first out (FIFO) method (6424). In some embodiments, a FIFO method is used for filling purchase orders in queue, but a user's order of insertion in the queue is determined by prioritizing.

In some embodiments, one or more users having an order in the queue are notified when the ordered item is ready for fulfillment (6426). In some embodiments, an alternative available item is presented to a user having an order in the queue, in accordance with a predicted fulfillment delay (6428). In some embodiments, if a user has placed an order, and the order is delayed or expected to be delayed, an alternative item is presented to the user for selection.

In some embodiments, prioritizing is performed according to fees associated with the respective users (6416).

FIG. **65** is a flowchart representing a server method **6500** for hosting an eProcurement system, according to certain embodiments of the invention. The server method **6500** may be governed by instructions that are stored in a computer readable storage medium, as described.

In some embodiments, the server method 6500 includes the following, performed at a server hosting an electronic procurement system. A first user purchase request to purchase an item associated with the electronic procurement system and a second user purchase request to purchase the same item are received (6502). A determination is made (6504) upon delivery of the item whether there is sufficient stock of the item available to fulfill both user purchase requests. The user purchase requests are prioritized (6506) based on the determining. The prioritized user purchase requests are fulfilled (6508) in accordance with priority. In some embodiments, prioritizing includes determining which request is the most important or highest priority.

In some embodiments, if, at time of delivery, an alternative item comparable with the requested item is available, and the requested item is not available in sufficient stock to satisfy both the first user and second user, one or more of the user purchase requests are fulfilled with the alternative item 6510.

FIG. 66 is a flowchart representing a server method 6600 for hosting an eProcurement system, according to certain embodiments of the invention. The server method 6600 may be governed by instructions that are stored in a computer readable storage medium, as described.

In some embodiments, the server method 6600 includes the following, performed at a server hosting an electronic procurement system. A series of user purchases of an item is analyzed (6602). A property per item purchased in the series is determined (6604). An inventory of the item is managed based on the property per item (6606).

In some embodiments, the property per item is a cost per unit of item purchased (6610). In some embodiments, the cost In some embodiments, the holding cost includes depreciation. In some embodiments, the holding cost includes interest expense.

In some embodiments, managing includes determining a selling price per unit of the item, based on the cost per unit of 25 the item and a markup (6614). In some embodiments, the property per item is a spoilage status, based upon average holding time per item (6616). In some embodiments, the spoilage status is a 'best before' date for food, medicines, or other organic items. In some embodiments, the property per 30 item is velocity of purchases for that item (6618). In some embodiments, the property per item is a predicted out-ofstock time based upon the velocity of purchases and a velocity of sales (6620).

FIG. 67 is a flowchart representing a server method 6700 35 for hosting an eProcurement system, according to certain embodiments of the invention. The server method 6700 may be governed by instructions that are stored in a computer readable storage medium, as described.

In some embodiments, the server method 6700 includes the 40 following, performed at server hosting an electronic procurement system. In response to receiving an invoice (e.g., stored in sales invoice database 3400, or buyer invoice database 3300, FIG. 22), a purchase document (e.g., from purchase order database 2500 or purchase request database 2700, FIG. 45 22) corresponding to the invoice is identified (6702), for example by sales/purchasing management module 2046, FIG. 20. Contents of the purchase document are compared (e.g., auto-matching 5984, and perform matching action 5978, FIG. 59D) against contents of the invoice (6704). A 50 discrepancy (e.g., matching exception 5986, FIG. 59D) between the purchase document and the invoice is identified (6706). A notification is generated based upon the identified discrepancy (6708). In some embodiments, the invoice is provided by a supplier to the electronic procurement system. 55 In some embodiments, the purchase document is a purchase order or a purchase requisition.

In some embodiments, the comparing is performed by comparing fields of the buyer invoice database 3300 and/or seller invoice database 3400 with corresponding fields from 60 the purchase order database 2500, all in FIG. 22. In some embodiments, these fields include one or more of Purchase Order Workflow Activity History 2510, Supplier 2532, Purchase Order Line Product 2548, and/or Purchase Order User Selected Approver 2562, all in FIG. 25. The selected fields are 65 exemplary, and in other embodiments a different selection of fields could be compared.

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In some embodiments, comparing contents includes performing at least a two way match (e.g., auto-match 5984, FIG. **59**D) between the invoice and the purchase document (**6170**). In some embodiments, at least a two way match includes a two way match and a three way match. In some embodiments, generating a notification includes notifying a user (e.g., matching exceptions 5994) associated with the purchase of the match (6722). In some embodiments, approval is requested from the user that the match is correct (6724). In some embodiments, approval is requested from the user to pay the invoice (6726), e.g., approve box 5996, FIG. 59E. In some embodiments, identifying a discrepancy includes determining if a property associated with the invoice is outside of range is specified by business rules (6714). In some embodiments, the property includes at least one selected from a group consisting of price, quantity, delivery date, and/or delivery quality (6716).

In some embodiments, generating a notification includes per item includes the holding cost per unit of that item (6612). 20 notifying the supplier that the invoice is in dispute (6728). In some embodiments, the supplier and a purchaser associated with the invoice are provided with access to an online dispute resolution mechanism (6732). In some embodiments, the online dispute resolution mechanism is hosted within the electronic procurement system (6734).

> In some embodiments, a receipt (e.g., from receipt database 2800) is generated for payment towards the invoice if the value of the invoice is over a threshold (6736).

> In some embodiments, identifying a discrepancy includes determining if an alternative item comparable with the requested item has been delivered (6718). In some embodiments, a determination is made whether the purchase order has been satisfied by the alternative item (6720). In some embodiments, comparing contents includes performing at least a three way match between the invoice and a purchase order and a purchase requisition (6738).

> FIG. 68 is a flowchart representing a server method 6800 for hosting an eProcurement system, according to certain embodiments of the invention. The server method 6800 may be governed by instructions that are stored in a computer readable storage medium, as described. In some embodiments, server method 6800 includes the following, performed at server hosting an electronic procurement system. In response to receiving an invoice, a purchase document corresponding to the invoice is identified (6802). The invoice and the purchase document are linked (6804). The invoice and the purchase document are presented (e.g. 5995, FIG. 59E) for payment approval (6806).

> In some embodiments, the identifying operation (6802) is performed by comparing fields of the buyer invoice database 3300 and/or seller invoice database 3400 with corresponding fields from the purchase order database 2500 and/or purchase requisition database 2700, as described in FIG. 22.

> In some embodiments, the linking and presenting for approval is performed by associating the buyer invoice database 3300 and/or seller invoice database 3400 with the purchase order database 2500 and/or purchase requisition database 2700. When the invoice is presented for approval, the associated purchase document is retrieved from the respective purchase database (2500 or 2700) and presented to the approver. This permits the approver to perform an 'eyeball' compare, i.e. human review, to ensure everything is correct prior to payment. This avoids the need for the approver to manually search for the purchase document and manually retrieve it (which may be time consuming) prior to approval.

> FIG. 69 is a block diagram of a server system 6900, including an eProcurement provider 20 hosted at server 3720. The

server **3720** is coupled, either locally or remotely, to a database/storage **3760** that hosts a plurality of databases, as previously described.

The electronic procurement (eProcurement) provider 20 interacts over a network 16 with a plurality of purchaser 5 clients 212, both as described earlier. The purchaser clients run client application 1532. The eProcurement provider 20 also interacts over network 16 with a plurality of supplier clients 214, wherein at least one of the suppliers has an associated catalog, as described earlier. The supplier clients run client application 1516. The supplier and client applications may include a web-browser interface or a stand alone application for accessing the eProcurement provider 20 and server 3720. The server 3720 may provide a web interface 3750 as described earlier. The server 3720 hosts a plurality of databases, as described earlier. The electronic procurement provider 20 hosts one or more supplier and purchaser workflow and material management 6902 applications, as described earlier. These applications assist users 212 and suppliers 214 in making transactions using eProcurement 20 provider 20, over the web interface.

In some embodiments, the electronic procurement system 20 is a single instance multi-tenant system. In some embodiments, the electronic procurement system 20 is a web-based system, using web interface 3750. In some embodiments, the 25 server 3720 is located independently from suppliers 214 and purchasers 212 of the electronic procurement system.

FIG. 70 shows an eProcurement system 7000 hosted at a supplier server 7010, which interacts over a network 16 with a plurality of purchaser clients 212, both as described earlier. 30 In this embodiment, the server 7030 is located at a supplier 7010 of the electronic procurement system. The purchaser clients run client applications 1532. This application may include a web-browser interface or a stand alone application, for accessing the supplier electronic procurement service 35 7020 and server 7030. The server 7030 may provide a web interface 7050 as described earlier. The supplier server 7010 hosts a plurality of databases, as described earlier. The supplier electronic procurement service 7020 hosts one or more supplier workflow and material management 7010 applications, as described earlier.

FIG. 71 shows an eProcurement system 7100 hosted at a purchaser server 7110, which interacts over a network 16 with a plurality of supplier clients 214, wherein at least one of the suppliers has an associated catalog, as described earlier. In 45 this embodiment, the server 7130 is located at a purchaser 7110 of the electronic procurement system. The supplier clients run client application 1516. This application may include a web-browser interface or a stand alone application, for accessing the purchaser electronic procurement service 7120 and server 7130. The server 7130 may provide a web interface 7150 as described earlier. The purchaser server 7110 hosts a plurality of databases, as described earlier. The purchaser electronic procurement service 7120 hosts one or more supplier workflow and material management 7140 applications, 55 as described earlier.

FIG. 72 is a flowchart representing a server method 7200 for hosting an eProcurement system, according to certain embodiments of the invention. The server method 7200 may be governed by instructions that are stored in a computer 60 readable storage medium, as described. In some embodiments, server method 7200 includes the following, performed at server hosting an electronic procurement system.

One or more instructions for managing an invoice workflow are received (e.g. FIG. **59**A workflow folder import 65 browse button **5912**, load folders/robots button **5914**) (**7202**), wherein the instructions have one or more steps having one or 72

more rules (FIG. **59**B, rules **5942** A-C), the rules determining when a respective step is executed.

User commands are received **7204** to modify (FIG. **59**B, steps **5931**, activities **5940**) instructions to generate a custom workflow having a plurality of steps (FIG. **59**B, steps start **5943**, stop **5944**), with one or more rules (associated with the plurality of steps).

The custom workflow is activated **7206** (in accordance with business rules), such that the custom workflow is executed when an invoice is processed by the electronic procurement system (e.g., FIG. **59**E matching exception **5994** corresponds to a rule for matching exception **5943**C in FIG. **59**B).

In some embodiments, modifying instructions (i.e., commands or steps to modify instructions) includes generating 7208 a rule for distributing an approval workload to a plurality of approvers, wherein an approval task assigned to a shared workflow folder (FIG. 59E, folder 5994) can be reviewed by any of a plurality of approvers. In some embodiments, distributing includes assigning a plurality of approvers to the shared workflow folder (7210).

In some embodiments, modifying instructions includes generating 7212 a rule (e.g., FIG. 59B, rule 5943A) for processing an invoice not associated with a purchase order. In some embodiments, modifying instructions includes generating 7214 a rule (e.g., FIG. 59B, rule 5943B) for automatically matching an invoice to a purchase document. In some embodiments, modifying instructions includes generating 7214 a rule (e.g., FIG. 59C, rule 5943B) for processing matching exceptions between an invoice to a purchase document. In some embodiments, modifying instructions includes generating 7214 a rule (e.g., FIG. 59D, rule 5943B) for automatically approving an invoice for payment. In some embodiments, modifying instructions includes generating 7216 a rule for removing (e.g., FIG. 59C, remove user 5972 and add user 5962) a user or an administrator from an invoice approval workflow.

In some embodiments, modifying instructions includes generating **7218** a rule for displaying to an approver (e.g., FIG. **59**C approvers **5966**) an invoice requiring approval. In some embodiments, the invoice is selected (**7220**) from a group consisting of a personal review folder and a shared invoice folder. In some embodiments, the one or more rules are defined (**7222**) by logical expressions (e.g., steps **5931**, and rules **5943** A-D).

In some embodiments, the generated custom workflow is exported (7224) to a file (e.g., FIG. 59B, export 5926). This file may be an XML file, a file containing a markup language, a binary file, a text file, or a file with any other format for storing data.

FIG. 73 is a flowchart representing a server method 7300 for hosting an eProcurement system, according to certain embodiments of the invention. The server method 7300 may be governed by instructions that are stored in a computer readable storage medium, as described. In some embodiments, server method 7300 includes the following, performed at server hosting an electronic procurement system.

One or more instructions are received (7302) for managing an invoice workflow. At least part of the received instructions are activated (e.g., FIG. 59A, workflow imported instruction folder/robot 5914) (7304) such that the at least part of the activated instructions are executed (e.g., FIG. 59C invoice workflow approvals 5991, 5993, 5994) when an invoice is processed by the electronic procurement system, wherein the activating is performed in accordance with business rules.

In some embodiments, a rule is generated (7306) for distributing (e.g., FIG. 59C approvers 5964 and users 5968) an

approval workload to a plurality of approvers. In some embodiments, the distributing includes assigning (7308) a task to a shared workflow folder to be executed by any of the plurality of approvers.

FIG. 74 is a flowchart representing a server method 7400 for hosting an eProcurement system, according to certain embodiments of the invention. The server method 7400 may be governed by instructions that are stored in a computer readable storage medium, as described. In some embodiments, server method 7400 includes the following, performed at server hosting an electronic procurement system.

A list of invoices requiring approval are sent (e.g., FIG. 59E, invoice approvals 5992) (7402) to a user of a system, wherein the list of invoices comprises one or more invoices assigned to a shared invoice folder sent (e.g., FIG. 59E, window 5994 with shared approvers 5997) (5992) for which the user is an approver. In some embodiments, the list of invoices further comprises invoices assigned to a personal review folder (e.g., FIG. 59E my invoice approvals 5993) associated 20 with the user (7404).

A command is received (7408) from the user to process (e.g., FIG. 59E action 5995, select 5996) one or more items selected from the list of invoices. In some embodiments, the command from the user comprises (7408) one selected from the group consisting of approve an invoice, complete an invoice, reject an invoice, place an invoice on hold, and forward an invoice to another approver. In some embodiments, the command from the user includes assigning (7410) a substitute approver (e.g., FIG. 59E assign 5998 approver) for a personal review folder associated with the user. In some embodiments, the command from the user includes assigning (7412) a substitute approver for the shared invoice folder.

In some embodiments, an item associated with one or more users is processed (7414) in response to a selection by a super user. In some embodiments, the processing comprises (7416) one selected from the group consisting of approve an invoice, complete an invoice, reject an invoice, place an invoice on hold, and forward an invoice to another approver.

In some embodiments, a task is assigned (7418) to a shared workflow folder for review by any of a plurality of approvers, including the user. In some embodiments, an approval status report is sent (7420) to the user, showing at least one selected from the group consisting of submission, approval, active and 45 completed status (FIG. 59D, 5982, 5984, 5986, 5988 respectively).

FIG. 75 includes a listing of folder and robots, including a Remit To Validation folder 7502, a Non-PO Approvals folder 7504, a Matching Exceptions folder 7506, a Matching Exception folder 7508, and Over Credits folder 7510, an Auto-Matching folder 7512, an OK to Pay folder 7514, and Over Credit-Auto Reject folder 7516, an Auto Match robot 7518, an Okay to Pay robot 7520, and an Over Credit/Invoice Process robot 1800.

In some embodiments, the Remit To Validation folder **7502** confirms that a supplier address to which funds are remitted is a valid supplier address. In some embodiments, the supplier address associated with an invoice is checked against a database of known supplier address (in some embodiments, controlled by a buyer administrator). Only if the address associated with the invoice matches with a known good supplier address are funds remitted. This may prevent mistaken payments to incorrect suppliers. This may also prevent unauthorized remittances of funds to unapproved suppliers, and thus help prevent fraud or misuse of the electronic procurement system.

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In some embodiments, the Non-PO Approvals folder **7504** implements a non-purchase order approval process, as described.

In some embodiments, the Matching Exceptions folder 7506 and Matching Exception folder 7508 implement a matching exception(s) process, as described.

In some embodiments, the Over Credits folder **7510** implements a process to prevent a supplier from over-crediting a returned item or items from a buyer. For example, a buyer may purchase ten units of a product, then return the ten units to the supplier. If the supplier credits the buyer for twelve units returned, then the supplier has over-credited the buyer by two units. The over credits folder **7510** identifies such a situation and flags it to an approver, in one embodiment by comparing the number of returned items from a buyer against the number of credited items from the supplier.

In some embodiments, the Auto-Matching folder **7512** implements an automatic matching process (e.g., between invoices and purchase documents), as described.

In some embodiments, the OK to Pay folder **7514**, implements an approval system for processing payment of invoices.

In some embodiments, the Over Credits Auto Reject folder **7516** implements a process to prevent a supplier from overcrediting a returned item or items from a buyer, and for automatically rejecting any invoices having over credits.

In some embodiments, the Auto Match robot **7518**, Okay to Pay robot **7520**, and Over Credit/Invoice Process robot **1800** operate as described, either alone or in conjunction with the respective folder.

FIG. 80 illustrates an exemplary field management interface in accordance with the present invention, as described. A Language Selection is illustrated, including a 'select a language' option for selecting a language for use in the electronic procurement system. A Field Management selection is illustrated, allowing a user to select fields from a field selection menu, showing a field history, and showing options for creating a new sibling or a new child. A 'save option' and an 'apply all changes' option is shown also.

FIG. **81** illustrates an exemplary update favorite(s) process flow in accordance with the present invention, as described. An option is provided for a user to select a favorite description, which may be applied to a product, and which may be placed in a favorites menu.

FIG. **82** illustrates an exemplary document setup interface in accordance with the present invention, as described. An option to add internal attachments is shown. An option to add attachments for all suppliers is shown.

FIG. 83 illustrates shows a system 10300 hosted at a supplier server 10310, which interacts over a network 16 with a plurality of purchaser clients 212, both as described earlier. The purchaser clients run client applications 1532. This application may include a web-browser interface or a stand alone application, for accessing the supplier electronic procurement service 10320 and server 10330. The server 10330 may provide a web interface 10350 as describe earlier. The electronic procurement provider 10320 hosts a plurality of databases 10360, including databases 2200 as described earlier.

FIG. 84 illustrates shows a system 10400 hosted at a purchaser server 10410, which interacts over a network 16 with a plurality of supplier clients 214, both as described earlier. The supplier clients run client applications 1516. This application may include a web-browser interface or a stand alone application, for accessing the purchaser electronic procurement service 10420 and server 10430. The server 10430 may provide a web interface 10450 as describe earlier. The elec-

tronic procurement provider 10420 hosts a plurality of databases 10460, including databases 2200 as described earlier.

In some embodiments, the electronic procurement system **20** is a single instance multi-tenant system. In some embodiments the electronic procurement system **20** is a web-based 5 system.

In some embodiments the electronic procurement system 20 is located independently from suppliers and purchasers of the electronic procurement system. In some embodiments the electronic procurement system 20 is located at a supplier of the electronic procurement system. In some embodiments the electronic procurement system 20 is located at a purchaser of the electronic procurement system.

FIG. **76**A illustrates a flowchart **7600** representing a server method for hosting an eProcurement system and for importing a purchase requisition, according to some embodiments.

A purchase requisition is received **7602** (e.g., from a user determined by user management module **2074**, FIG. **20**), where the purchase requisition originates from a purchasing organization outside of the electronic procurement system. In 20 some embodiments, the purchase requisition is received by requisition module **2082** (FIG. **20**). An exemplary electronic procurement system is the "Higher Markets" module in the "Select Site" product by SciQuest, Inc.

In some embodiments, the "Higher Markets" module 25 allows a user to search hosted catalogs and compare product features, descriptions, pictures, technical data and pricing, or "punch-out" to suppliers' web sites customized with the user's pricing and catalog specifications. The "Higher Markets" module allows a user to point and click to build shopping carts, attach notes and comments to requisitions and conduct all purchase requests electronically, using one system, and to track approval status of requisitions via electronic workflow. The "Higher Markets" module allows a user to acknowledge receipt of goods, reject damaged orders or 35 accept partial shipments through the Express interface, and to view order history, favorites and organizational notices.

Examples of the purchasing organization include academic, laboratory, industrial, commercial, government, or military procurement systems, running on open or propri- 40 etary platforms. Examples of these platforms include FAMIS, Maximo, IonWave, Squared, Oracle, and SAP.

In some embodiments, the purchasing organization may use a different format (including for data values, formats, attributes, and properties) to the electronic procurement system (e.g., in requisition database 2700, FIG. 22), depending on the purchasing organization's system, software, internal procedures, etc.

In some embodiments, a user associated with the purchase requisition is prevented from editing the purchase requisition 50 (7604). In some embodiments, the purchaser-specified required information may be stored in an end user database 232 and/or a requisition database 2700 (FIG. 22). This would be desirable when the purchasing organization wants to ensure that all requisitioned items are visible and are tracked 55 through its own system. This prevents a user from submitting a purchase requisition within the purchasing organization's system and then editing it outside the purchasing organization's system to add other items, which are not tracked by the purchasing organization's system.

In some embodiments, the system verifies (7606) that required information is present, and if not, saves the purchase requisition in the electronic procurement system and notifies a user associated with the purchaser requisition that the required information is missing. Examples of such required 65 information could include shipping information, billing information, and payment information. In an example, if a

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known user submits a purchase requisition, but omits the shipping information, billing information, or payment information, the purchase requisition may be saved on in the electronic procurement system as a draft, and the user notified by email, etc. to correct the draft purchase requisition.

In some embodiments, the required information is specified (7608) by a purchasing organization associated with the purchase requisition. Examples of this required information could include accounting codes, department codes, project codes, contract codes, etc. The purchasing organization may require that requisitions identify (using one of the above codes) what cost center they are associated with, for cost tracking and budgeting purposes. In some embodiments, the system verifies (7612) that purchaser required information is associated with the purchase requisition, and if not, notifies a sender (e.g., by email or by a response sent back to a server associated with the purchasing organization, such an XML message, sent via network communication module 2012, FIG. 20) of the purchase requisition that the purchase requisition is refused or is incomplete.

In some embodiments, the required information is a next approver (7610) associated with the user submitting the purchaser requisition. In some embodiments, a user of the procurement system has an associated next approver (e.g., stored in end user database 232 and/or user security database 3500, FIG. 20), where the associated next approver typically approves the user's purchaser requisitions or approves purchase requisitions over a certain amount. As an example, a technician may have approval ability for one hundred dollars worth of lab supplies. If the technician submits a purchase requisition for an item that costs over one hundred dollars, the technician's next approver (e.g., a lab manager supervising the technician) may need to approve the purchase requisition. In some embodiments, approvers may be substituted or assigned. In some embodiments, users and approvers are identified by a user identifier (e.g., employee number, account number) associated with them or with their account. In some embodiments, users and approvers are identified by a role or a position (e.g., lab manager, department head, vice president) associated with them or with their account.

In some embodiments, the system verifies (7614) (e.g., performed by requisition module 2082, FIG. 20) that at least one line item is associated with the purchase requisition, and if not, notifies a sender of the purchase requisition that the purchase requisition is refused. In some embodiments, if a blank (e.g., no items ordered) purchase requisition is received, then the requisition may be either refused, or may be saved as a draft (e.g., in requisition database 2700) and a notification sent to the user/requestor and/or purchasing organization that the requisition is blank and needs to be completed with at least one item to be ordered.

In some embodiments, a plurality of purchase requisitions are received in a single operation (7616), including in a file, a batch of files, or a set of requisitions received substantially together. An example of this is where a purchase organization might aggregate all of its purchases over a day or a week or other time period to minimize shipping costs, and submit them together or spread over a particular time period.

FIG. 76 B continues the flowchart 7600 of FIG. 76A. The
purchase requisition is converted (7630) from a first format to
a second format, wherein the second format is native to the
electronic procurement system. In some embodiments, the
conversion process (e.g., performed by schema translate
module 2026 or schema update module 2028, FIG. 20)
involves reading the received purchase requisition, identifying fields and/or data (including attributes and/or properties)
in the purchase requisition corresponding to fields and/or data

of the electronic procurement system, and mapping the data from the respective fields of the received purchase requisition to the respective fields of the electronic procurement system, e.g., in requisition database 2700. In some embodiments, the received purchase requisition is in XML format, or in another 5 markup language.

In some embodiments, an attachment associated with the purchase requisition is imported into the electronic procurement system (7634). Examples of an attachment may be a product specification, images associated with an item, supporting information for a competitive bid, or other information that is related to the product requisition.

In some embodiments, the second format native to the electronic procurement system is Extensible Markup Language, also known as XML (7636). XML is a general-purpose specification for creating custom markup languages. It is classified as an extensible language because it allows its users to define their own elements. An application of XML is to help information systems share structured data, particularly via the Internet, and it is used both to encode documents and to serialize data. Other related languages, syntaxes, and formats could also be used to achieve the same purpose.

In some embodiments, a respective restricted item is identified in the purchase requisition and a respective restriction is applied to the purchase requisition, in accordance with busi- 25 ness rules (7638). Examples of a restricted item include radioactive items, select agents, poisons, asbestos, and other hazardous materials. For these items and others requiring special handling or processing, the purchasing workflow (e.g., controlled by workflow module 2076, and stored in workflow 30 database 3000, FIG. 20) may associate special labels, flags or warnings with the purchase request and any associated purchase order, invoice, shipping/receiving documentation, etc. In some embodiments, a restriction override request for a respective restricted item is identified in the purchase requi- 35 sition (7640). Such a restriction override request may be appropriate where the ordering facility is equipped to receive hazardous material, e.g., at an industrial recycling or disposal facility or where no special handling or processing is required above normal procedures.

In some embodiments, a form (e.g., controlled by forms module **2076**, FIG. **20**) associated with the purchase requisition is identified, data is mapped from the purchase requisition into the form, and the mapped form data is stored (e.g., in forms database **2300**, FIG. **20**) at the electronic procurement system (**7642**). An example of such a form is an order form for business cards, a menu for a restaurant, any order for which a standard set of options may be chosen, etc. In this scenario, a user submits a purchase request for an item, where the item is associated with a form. The purchase request item is mapped into a form, and the form is routed to a supplier (e.g. through sale fulfillment module **2054**, FIG. **20**). In some embodiments, items listed in the form are mapped to items in the hosted catalog (e.g., by catalog module **2020**, FIG. **20**), prior to being routed to the supplier.

In some embodiments, a punchout item (in some embodiments, displayed to the user though a punchout module **2126**, FIG. **21**) associated with the purchase requisition is identified. A punchout item is an item associated with a catalog hosted by a supplier, for example at the supplier's website. An exemplary punchout item is a laptop computer that a user configures at a PC vendor's website, for which the user receives from the PC vendor an identifier associated with the configured laptop. The user then submits a purchase request for the laptop computer using the identifier associated with 65 the configured laptop. The purchase request is processed (e.g., requisition module **2082**) using the identifier informa-

tion, and, after routing for approval, a corresponding purchaser order is sent to the supplier, e.g., by purchase order module 2082, and the purchase order is stored in purchase order database 2500 (FIG. 20).

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In some embodiments, the purchase requisition is identified as an imported requisition (7644). In some embodiments, the imported purchase requisition is routed to an approval process (e.g., via workflow module 2076, FIG. 20) for imported requisitions (7646). In an exemplary scenario, imported requisitions may be routed and processed separately from requisitions originating from (i.e., starting within) the electronic procurement system. Imported requisitions may have different approval requirements and reporting requirements to normal (originating from the electronic procurement system) requisitions.

In some embodiments, a requisition identifier associated with an imported requisition is identified and stored, wherein the electronic procurement system supports searching (e.g., using database access module 2072, FIG. 20) by the requisition identifier (7648). This is desirable because the purchasing organization or a user can search for or track the purchase requisition using this requisition identifier.

The server verifies (7650) that the converted purchase requisition is consistent with business rules (e.g., from business rules database 3756, FIG. 37) associated with the electronic procurement system, including at least a rule to verify that the purchase requisition originates from a recognized user of the electronic procurement system. This verification includes checking (e.g., performed by requisition module 2082, in some embodiments including schema translate module 2026 and/or scheme update module 2028, FIG. 20) that the converted purchase requisition does not violate any business rules (e.g., rules set by the purchasing organization or rules set by the electronic procurement system), for example, that the user has permission to order items in the requisition.

FIG. **76** C continues the flowchart **7600** of FIG. **76**B. In some embodiments, prior to routing, edits by a user to the purchase requisition are received at the electronic procurement system, and the purchase requisition is updated (e.g., update purchaser requisition database **2700**, FIG. **22**) with the edits (**7660**). In some embodiments, the electronic procurement system verifies that the updated purchase requisition is consistent with the business rules (**7662**).

In some embodiments, prior to routing for approval, a plurality of bids for the verified purchase requisition are received, a user selected bid from the plurality of bids is received, and the purchase requisition is updated with the user selected bid. This is useful in a situation where a purchasing organization or user has a large volume of items to purchase and puts the items up for competitive bid. In some embodiments, upon receiving a plurality of bids, the purchasing organization or user may select one of the bids and the purchase requisition is updated accordingly. In some embodiments, the bid may be selected automatically based on some criteria such as price, delivery date, etc. The purchase requisition is routed for approval (7666), e.g., through workflow module 2076 (FIG. 20).

In some embodiments, routing for approval means that the purchase requisitions is transmitted, forwarded, or sent to one or more approvers to approve the purchase requisition. In some embodiments, routing for approval means that the purchase requisition is transmitted, forwarded, or sent to an approval system for automatic approval (i.e., without requiring a human approver). In some embodiments, the system for automatic approval is based on an algorithm for approving purchases.

In some embodiments, a re-order based on the purchase requisition is prevented (7668), based on business rules. This is to ensure that a separate purchase requisition must be submitted for each order so that the purchasing organization can track each purchase individually.

FIG. 77 illustrates an exemplary screenshot 7700 of an imported purchase requisition user interface, according to some embodiments. The purchase requisition may include fulfillment information such as a shipping group 7710, a billing group 7712, and delivery details 7714, including 10 attachments and notes for suppliers and purchase order clauses. The purchase requisition may include order information such as a cart group 7716 including name, description, cart source, priority, expedite, submitted, budget, and approval details. The purchase requisition may include 1 approval details 7718 including prepared-by information and status. The purchase requisition may include account details 7720, including a splitable custom field group 7720, accounting information 7722, including department code and project code, internal attachments 7724, and other account informa- 20 tion. In some embodiments, the fields described in the screenshots of FIG. 77 and FIG. 78 have corresponding fields or entries in the purchase requisition database 2700 (FIG. 22).

The purchase requisition may include supplier and line item details 7726. These details may include the supplier, a 25 PO number, a contract number, an account code, a quote number, a pricing code, purchase order clauses, and other related fields. A line item 7728 may include product description details, catalog number 7730, size and packaging details, and cost details 7732, including unit price, quantity, and total 30 price.

FIG. 78 illustrates an exemplary screenshot of an imported purchase requisition, highlighting required fields, according to some embodiments. The purchase requisition may include a shipping group 7810, in some embodiments used by pur- 35 chasing/checkout module 2148, and/or an order fulfillment module 2150 (FIG. 21). A billing group 7812 (e.g., used by payment module 2152, FIG. 21) is shown highlighted as a required field, which, if missing, means that the purchase requisition is incomplete. This will cause a rejection of the 40 purchase requisition, or an acceptance but with a notification sent to the owner of the requisition to add the required information before the requisition can be processed. The purchase requisition may include credit card information 7814, which in some embodiments is a required field also. In some 45 embodiments, the credit card information is stored in user/ security database 3500 (FIG. 22).

The purchase requisition may include a cart group **7816** (e.g., used by cart management module **2144**, FIG. **21**), approval details **7818**, splitable custom field group **7820**, 50 accounting information **7822**, internal attachments **7824**, product descriptions **7828**, catalog number **7830** (in some embodiments, used by catalog module **2020**, FIG. **20**), and price and quantity **7832**, as described.

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A splitable custom field group includes a grouping of account codes that allow the user to assign different account codes to an order. This allows for an item to be paid from multiple internal grants or funds, e.g., from research grants in an academic environment. For example, if a microscope is being purchased and will be used for two projects (or any number of projects), the cost of the microscope can be split among the projects (e.g. 20% for the first project, 80% for the second project, etc.)

FIG. 79 illustrates a flowchart representing a server method for importing a purchase requisition and reporting a status, according to some embodiments. An external procurement system 7902 sends a purchase request 7904 to the electronic procurement system (shown as requisition manager, 7908). In some embodiments, the external procurement system 7902 is associated with a buyer, and may be a proprietary system, as described.

The requisition manager 7908 reads and parses (7910) (in some embodiments, using schema translate module 2026, FIG. 20) the purchaser request 7904 to determine the contents of such request. In some embodiments, the purchaser request is in XML format, which provides information on the identity of data fields in the request. The requisition manager checks (7912) if the purchaser request 7904 contains valid information relating to the electronic procurement system, e.g., if the purchase request is a validly formatted request or if it is unrelated to the electronic procurement system, such as a misdirected or corrupted message.

If the purchaser request 7904 does not contain valid information, then an error response 7906 is sent to the external procurement system 7902.

If the purchaser request 7904 does contain valid information, then the requisition manager 7908 checks if the purchase request contains valid customer defined information 7914, e.g., information that the buyer's (purchasing organization) system (7902) requires to be present in a purchaser requisition. Examples of this customer defined information include department information for a university or contract and/or project information for a commercial purchaser. In some embodiments, if the customer defined information is not associated (NO branch) with the purchaser request, then a draft request 7916 is generated and a notification 7920 is sent to the end user/owner associated with purchase request. Upon receiving corrections or updates 7918 to the requisition from the user, the requisition is ready to be submitted to workflow approval 7924. In some embodiments, if the customer defined information is associated (YES branch) with the purchaser request, then a pending requisition 7922 is generated. The pending requisition is ready to be submitted to workflow approval 7924.

Table 1 lists exemplary purchase requisition information and messages associated with importation of a purchase requisition.

TABLE 1

XML DATA STRUCTURE AND FIELDS ASSOCIATED WITH A PURCHASE REQUISITION.

Purchase Requisition Message Header MessageId Timestamp Authentication

Identity: SharedSecret Purchase Requisition Requisition Header Header to the purchase requisition message.

Identifier for the purchase requisition message.

Timestamp for the purchase requisition message.

Information to authenticate the purchase requisition message.

Identity of the external eProcurement system Password for the external eProcurement system

Identifier of the requisition in the external eProcurement system

TABLE 1-continued

XML DATA STRUCTURE AND FIELDS ASSOCIATED WITH A PURCHASE REQUISITION.

RequisitionNumber Name of the requisition in the external eProcurement system RequisitionName Description of the requisition in the external eProcurement system Description Owner of the requisition (user must exist in the SciQuest application) Requestor

username (attribute) Unique identifier for the owner of the requisition

Prepared By User which created the requisition in the external eProcurement system (user must exist in the SciQuest application) UserProfile username (attribute) Unique identifier for the user who created the requisition PriorityFlag PriorityFlag to determine if the requisition is a priority Bill to address for the requisition. Applies to all requisition lines BillTo

unless a specific line has a unique bill to address

Address TemplateName Identifier that will link the bill to address to the layout as defined

within the SciQuest application

AddressCode Bill to address address code. Used for integration to the

supplier's fulfillment system

Contact Contact lines for the address

"Label for a contact address line (e.g. ""Attn:"")" label (attribute) linenumber (attribute) Sequence line number for the contact address line AddressLine Address lines for the address

label (attribute)

"Label for the address line (e.g. "Street Address"")"

Sequence line number for the address line linenumber (attribute) City for the address

City State for the address State PostalCode Postal zip code the address Country for the address Country

Ship to address for the requisition. Applies to all requisition ShipTo lines unless a specific line has a unique ship to address

Address (same as BillTo) See bill to address descriptions

Accounting Date The fiscal order date.

Note used to relay information for the internal review and Note

approval process.

Attachments File and URL attachments used for internal review and approval Attachment

AttachmentName Descriptive name for the attachment

AttachmentURL Network or internet location address for the attachment AttachmentSize File size of the attachment Note (same as InternalInfo) Note to send to the supplier for ordering information

Attachment (same as InternalInfo) File and URL attachments to be sent to the supplier Expediate Indicator for the supplier that the order should be shipped as

soon as possible true/false

value (attribute) ShippingMethod Requested shipping method for the order

id (attribute) Internal shipping method id

Carrier Requested carrier for the order (e.g. UPS, FedEx, etc.)

id (attribute)

MethodName Requested shipping method name for the order (e.g. Ground,

Overnight, etc.)

RequestedDeliveryDate The date the user requests the order be delivered Grouping of supplier information.

RequisitionSupplierGroup RequisitionSupplierGroupinfo

Supplier The supplier for the requested items

id (attribute) Internal identifier for the supplier. The identifier is internal to the

SciQuest application

Name Supplier name SupplierNumber Customer supplier identifier

DUNS

DUNS number for the supplier Fulfillment Address Internal Id

Internal identifier for the supplier's fulfillment center location. The identifier is internal to the SciQuest application

FulfillmentAddressId Customer supplier's fulfillment center location identifier FulfillmentAddressThirdPartyId Additional customer supplier's fulfillment center location

identifier

ContactInfo

Phone Supplier contact phone number

Suppliers fax number. Used for order distribution Fax Email Suppliers email address. Used for order distribution

AccountCode Customer's supplier account code PricingCode Customers supplier pricing code

ShippingCharges Shipping charges for the order. Charges for the all items for the

TSHConfig

override (attribute = truelfalse) Indicator that the shipping charges are different from defined as part of the supplier's profile within the SciQuest application

PercentageRate Shipping charges percentage rate (e.g. 6%) FlatChargeByLine Flat shipping charge amount for each line

TABLE 1-continued

XML DATA STRUCTURE AND FIELDS ASSOCIATED WITH A PURCHASE REQUISITION.

FlatChargeByOrder Flat shipping charge amount for each order

FreeThresholdLimit Threshold limit where shipping charges are not applied

TSHActualCharge

Money

currency (attribute) Shipping charge amount

HandlingCharges Handling charges for the order. Charges for the all items for the

Tax charges for the order. Charges for the all items for the Tax 1

supplier

Tax2 Additional tax charges for the order. Charges for the all items for the supplier

RequestedPONumber PO number to be assigned to the purchase order to be sent to

the supplier

Line item information for the order RequisitionLine

linenumber (attribute) Line number for the order

Requested item Item

Catalog Number Requested catalog (SKU) number AuxiliaryCatalogNumber Requested item auxiliary catalog number

Description Item description Item's unit of measure ProductUnitOfMeasure

Measurement

Defines the type of product measurement. From the customer, (attribute = buyerlsupplierlsystem)

supplier or internal amount

The item's unit of measurement amount MeasurementAmount MeasurementUnit The item's unit of measurement unit indicator MeasurementValue The item's combined amount and unit Item's product size (e.g. 10 mL) ProductSize

Defines the type of product size. From the customer supplier or

(attribute = buyerlsupplierisystem) internal amount Measurement

same as ProductUnitOfMeasure Item's UNSPSC value UNSPSC CommodityCode Item's commodity code value Product Reference NumberInternal SciQuest product identifier

ProductType Product type (hosted, non-catalog, punchout). Indicates the

type of product and how it was added to the cart

Flags for the item (e.g. Green, Radioactive, Rad Minor) type (attribute)true/false

Supplier (same as RequisitionSupplierGroupinfo)

ManufacturerInfo

ProductClassification

Name Item's manufacturer name

CatalogNumber Item's manufacturer catalog (SKU) number LeadTimeDays Number of days required for item shipment

CASNumber Item's CAS number RadioNuclide Item's RadioNuclide amount BarCode Item's barcode Quantity Requested quantity

CapitalExpense Indicator that the item is a capital expense FixedAsset Indicator that the item is a fixed asset

Taxable Indicator that the item should be considered taxable

LineCharges UnitPrice

Item's unit price ShippingCharges See the same element in the Supplier Group TaxShippingHandling See the same element in the Supplier Group TSHConfig See the same element in the Supplier Group override (attribute = truelfalse) See the same element in the Supplier Group See the same element in the Supplier Group PercentageRate FlatChargeByLine See the same element in the Supplier Group FlatChargeByOrder See the same element in the Supplier Group FreeThresholdLimit See the same element in the Supplier Group

TSHActualCharge

Money

currency (attribute) See the same element in the Supplier Group HandlingCharges See the same element in the Supplier Group

TaxShippingHandling (same as ShippingCharges)

See the same element in the Supplier Group Tax1 Tax2 See the same element in the Supplier Group

DeliveryInfo

See the same element in the Supplier Group Expediate

value (attribute)

ShippingMethod See the same element in the Supplier Group Carrier See the same element in the Supplier Group id (attribute)

MethodName See the same element in the Supplier Group Method Display TextSee the same element in the Supplier Group RequestedDeliveryDate See the same element in the Supplier Group SupplierInfo See the same element in the Supplier Group AccountingCode See the same element in the Supplier Group

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TABLE 1-continued

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XML DATA STRUCTURE AND FIELDS ASSOCIATED WITH A PURCHASE REQUISITION.

PricingCode See the same element in the Supplier Group Contract Number Contract number associated with the requested item Note See the same element in the Supplier Group Attachments See the same element in the Supplier Group Attachment See the same element in the Supplier Group AttachmentName See the same element in the Supplier Group AttachmentURL See the same element in the Supplier Group AttachmentSize See the same element in the Supplier Group QuoteNumber Supplier quote number for the item InternalInfo See the same element in the Supplier Group Note See the same element in the Supplier Group Attachments See the same element in the Supplier Group See the same element in the Supplier Group Attachment AttachmentName See the same element in the Supplier Group AttachmentURL See the same element in the Supplier Group AttachmentSize See the same element in the Supplier Group BillTo See the same element in the Supplier Group Address (same as BillTo) See the same element in the Supplier Group ShipTo See the same element in the Supplier Group Address (same as BillTo) See the same element in the Supplier Group END OF TABLE 1

Each of the above identified elements may be stored in one or more of the previously mentioned memory devices, and corresponds to a set of instructions for performing a function described above. The above identified modules or programs (i.e., sets of instructions) need not be implemented as separate software programs, procedures or modules, and thus various subsets of these modules may be combined or otherwise re-arranged in various embodiments. In some embodiments, memory 2010 and 2110 may store a subset of the modules and data structures identified above. Furthermore, memory 2010 and 2110 may store additional modules and data structures not described above.

The foregoing description, for purpose of explanation, has been described with reference to specific embodiments. However, the illustrative discussions above are not intended to be exhaustive or to limit the invention to the precise forms disclosed. Many modifications and variations are possible in view of the above teachings. The embodiments were chosen and described in order to best explain the principles of the invention and its practical applications, to thereby enable others skilled in the art to best utilize the invention and various embodiments with various modifications as are suited to the particular use contemplated.

We claim:

- 1. A computer-implemented method, comprising:
- by a server system, in response to one or more user commands to an electronic procurement system:
- receiving a purchase requisition, where the purchase requisition originates from outside the electronic procurement system:
- converting the purchase requisition from a first computerreadable format to a second computer-readable format, wherein the second computer-readable format is native to the electronic procurement system;
- verifying that the purchase requisition that originates from outside the electronic procurement system includes one or more required fields, including at least a field used to verify that the purchase requisition originates from a recognized user of the electronic procurement system;
- determining that the verified purchase requisition includes 65 an item that is in short-supply or includes a large volume of items;

- in accordance with the determination that the verified purchase requisition includes an item that is in short-supply or includes a large volume of items, requesting bids from a plurality of vendors;
- receiving a plurality of bids from the plurality of vendors for the verified purchase requisition;
- receiving a user selected bid;
- updating the purchase requisition with the user selected bid; and
- routing the purchase requisition including the user selected bid for approval.
- 2. The computer-implemented method of claim 1, further comprising prior to routing,
 - receiving at the electronic procurement system edits by a user to the purchase requisition, and updating the purchase requisition with the edits.
- 3. The computer-implemented method of claim 2, further comprising verifying that the updated purchase requisition includes the one or more required fields.
- **4**. The computer-implemented method of claim **1**, further comprising after receiving the purchase requisition
 - preventing a user associated with the purchase requisition from editing the purchase requisition; or
 - verifying that a purchaser required information is associated with the purchase requisition, and if not, notifying a sender of the purchase requisition that the purchase requisition is refused; or
 - verifying that at least one line item is associated with the purchase requisition, and if not, notifying a sender of the purchase requisition that the purchase requisition is refused; or
 - verifying that required information is present, and if not, saving the purchase requisition in the electronic procurement system and notifying a user associated with the purchase requisition that required information is missing, and
 - wherein the required information is specified by a purchasing organization associated with the purchase requisition or is a next approver associated with a user submitting the purchase requisition.
- 5. The computer-implemented method of claim 1, wherein converting the purchase requisition includes:

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- importing an attachment associated with the purchase requisition into the electronic procurement system; or
- identifying a respective restricted item in the purchase requisition and applying a respective restriction to the purchase requisition; or
- identifying a form associated with the purchase requisition and mapping data from the purchase requisition into the form, and storing the mapped form data at the electronic procurement system; or
- identifying the purchase requisition as an imported requisition; or
- identifying and storing a requisition identifier associated with a user submitting the requisition, and wherein the electronic procurement system supports searching by the requisition identifier.
- **6**. The computer-implemented method of claim **1**, wherein the second computer-readable format native to the electronic procurement system is an Extensible Markup Language.
- 7. The computer-implemented method of claim 5, further comprising identifying in the purchase requisition a restriction override request for a respective restricted item.
- **8**. The computer-implemented method of claim **1**, wherein receiving a purchase requisition includes receiving a plurality of purchase requisitions in a single operation.
- **9**. The computer-implemented method of claim **1**, wherein 25 routing the purchase requisition for approval includes:
 - preventing a re-order based on the purchase requisition; or routing the purchase requisition to an approval process for imported requisitions.
 - 10. A server system, comprising:

one or more processors;

memory; and

- one or more programs stored in the memory, the one or more programs comprising instructions to:
- by a server system, in response to one or more user com- 35 mands to an electronic procurement system:
- receiving a purchase requisition, where the purchase requisition originates from outside the electronic procurement system;
- converting the purchase requisition from a first computerreadable format to a second computer-readable format, wherein the second computer-readable format is native to the electronic procurement system;
- verifying that the purchase requisition that originates from outside the electronic procurement system includes one 45 or more required fields, including at least a field used to verify that the purchase requisition originates from a recognized user of the electronic procurement system;
- determining that the verified purchase requisition includes an item that is in short-supply or includes a large volume 50 of items;
- in accordance with the determination that the verified purchase requisition includes an item that is in short-supply or includes a large volume of items, requesting bids from a plurality of vendors;
- receiving a plurality of bids from the plurality of vendors for the verified purchase requisition;

receiving a user selected bid;

- updating the purchase requisition with the user selected bid; and
- routing the purchase requisition including the user selected bid for approval.
- 11. The server system of claim 10, further comprising instructions for prior to routing,
 - receiving at the electronic procurement system edits by a 65 user to the purchase requisition, and updating the purchase requisition with the edits.

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- 12. The server system of claim 11, further comprising instructions for verifying that the updated purchase requisition includes the one or more required fields.
- 13. The server system of claim 10, further comprising instructions for after receiving the purchase requisition,
 - preventing a user associated with the purchase requisition from editing the purchase requisition; or
 - verifying that a purchaser required information is associated with the purchase requisition, and if not, notifying a sender of the purchase requisition that the purchase requisition is refused; or
 - verifying that at least one line item is associated with the purchase requisition, and if not, notifying a sender of the purchase requisition that the purchase requisition is refused; or
 - verifying that required information is present, and if not, saving the purchase requisition in the electronic procurement system and notifying a user associated with the purchase requisition that required information is missing; and
 - wherein the required information is specified by a purchasing organization associated with the purchase requisition or is a next approver associated with a user submitting the purchase requisition.
- 14. The server system of claim 10, wherein instructions for converting the purchase requisition includes instructions for: importing an attachment associated with the purchase requisition into the electronic procurement system; or
 - identifying a respective restricted item in the purchase requisition and applying a respective restriction to the purchase requisition; or
 - identifying a form associated with the purchase requisition and mapping data from the purchase requisition into the form, and for storing the mapped form data at the electronic procurement system; or
 - identifying the purchase requisition as an imported requisition; or
 - identifying and storing a requisition identifier associated with a user submitting the requisition, and wherein the electronic procurement system supports searching by the requisition identifier.
- 15. The server system of claim 10, wherein the second computer-readable format native to the electronic procurement system is an Extensible Markup Language.
- **16**. The server system of claim **14**, further comprising instructions for identifying in the purchase requisition a restriction override request for a respective restricted item.
- 17. The server system of claim 10, wherein instructions for receiving a purchase requisition includes instructions for receiving a plurality of purchase requisitions in a single operation.
- 18. The server system of claim 10, wherein instructions for routing the purchase requisition for approval includes instructions for:
 - preventing a re-order based on the purchase requisition; or routing the purchase requisition to an approval process for imported requisitions.
- 19. A non-transitory computer-readable storage medium storing one or more programs configured for execution by a computer, the one or more programs comprising instructions to:
 - by a server system, in response to one or more user commands to an electronic procurement system:
 - receiving a purchase requisition, where the purchase requisition originates from outside the electronic procurement system;

converting the purchase requisition from a first computerreadable format to a second computer-readable format, wherein the second computer-readable format is native to the electronic procurement system;

verifying that the purchase requisition that originates from outside the electronic procurement system includes one or more required fields, including at least a field used to verify that the purchase requisition originates from a recognized user of the electronic procurement system;

determining that the verified purchase requisition includes an item that is in short-supply or includes a large volume of items:

in accordance with the determination that the verified purchase requisition includes an item that is in short-supply or includes a large volume of items, requesting bids from a plurality of vendors;

receiving a plurality of bids from the plurality of vendors for the verified purchase requisition;

receiving a user selected bid;

updating the purchase requisition with the user selected 20 bid; and

routing the purchase requisition including the user selected bid for approval.

20. The non-transitory computer-readable storage medium of claim **19**, further comprising instructions for prior to routing,

receiving at the electronic procurement system edits by a user to the purchase requisition, and updating the purchase requisition with the edits.

21. The non-transitory computer-readable storage medium ³⁰ of claim **20**, further comprising instructions for verifying that the updated purchase requisition includes the one or more required fields.

22. The non-transitory computer-readable storage medium of claim **19**, further comprising instructions for after receiving the purchase requisition,

preventing a user associated with the purchase requisition from editing the purchase requisition; or

verifying that a purchaser required information is associated with the purchase requisition, and if not, notifying a sender of the purchase requisition that the purchase requisition is refused; or

verifying that at least one line item is associated with the purchase requisition, and if not, notifying a sender of the purchase requisition that the purchase requisition is ⁴⁵ refused; or

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verifying that required information is present, and if not, saving the purchase requisition in the electronic procurement system and notifying a user associated with the purchase requisition that required information is missing, and

wherein the required information is specified by a purchasing organization associated with the purchase requisition or is a next approver associated with a user submitting the purchase requisition.

23. The non-transitory computer-readable storage medium of claim 19, wherein instructions for converting the purchase requisition includes instructions for:

importing an attachment associated with the purchase requisition into the electronic procurement system; or

identifying a respective restricted item in the purchase requisition and applying a respective restriction to the purchase requisition; or

identifying a form associated with the purchase requisition and mapping data from the purchase requisition into the form, and for storing the mapped form data at the electronic procurement system; or

identifying the purchase requisition as an imported requisition; or

identifying and storing a requisition identifier associated with a user submitting the requisition, wherein the electronic procurement system supports searching by the requisition identifier.

24. The non-transitory computer-readable storage medium of claim **19**, wherein the second computer-readable format native to the electronic procurement system is an Extensible Markup Language.

25. The non-transitory computer-readable storage medium of claim 19, further comprising instructions for identifying in the purchase requisition a restriction override request for a respective restricted item.

26. The non-transitory computer-readable storage medium of claim 19, wherein instructions for receiving a purchase requisition includes instructions for receiving a plurality of purchase requisitions in a single operation.

27. The non-transitory computer-readable storage medium of claim 19, wherein instructions for routing the purchase requisition for approval includes instructions for:

preventing a re-order based on the purchase requisition; or routing the purchase requisition to an approval process for imported requisitions.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO. : 9,245,291 B1 Page 1 of 1

APPLICATION NO. : 12/286507

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INVENTOR(S) : Ballaro et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title Page, Item (57) Abstract, line 10, please delete "requisition verified" and insert --requisition is verified--;

In the claims,

Claim 14, column 88, line 26, please delete "includes" and insert --include--;

Claim 17, column 88, line 49, please delete "includes" and insert --include--;

Claim 18, column 88, line 53, please delete "includes" and insert --include--;

Claim 23, column 90, line 12, please delete "includes" and insert --include--;

Claim 26, column 90, line 38, please delete "includes" and insert --include--;

Claim 27, column 90, line 42, please delete "includes" and insert --include--.

Signed and Sealed this Twenty-sixth Day of April, 2016

Michelle K. Lee

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Director of the United States Patent and Trademark Office